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Obstacles and Aids to Communicable Disease Nursing*

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THE prevention, control, and care of communicable diseases is admittedly one of the major health problems confronting health workers and the public today. It calls for the most skillful and complete coöperation between the medical profession, health officers, school physicians and teachers, nurses, hospitals, and laymen. If all of us work together on a plan, there is no reason why we cannot meet this urgent need in the public health movement, which up to the present has been largely passed by.

If we consider the number of deaths and the estimated number of cases from the 4 common communicable diseases of childhood, we are faced with the seriousness of our task. According to the mortality reports of the Bureau of the Census, the number of deaths in the United States in one year (1934) was:

Diphtheria	4,159
Scarlet fever	2,524
Whooping cough	7,518
Measles	6,986
Combined total	21,187

It is estimated that this number of deaths represents approximately 3,000,000 cases of sickness. But that is not the whole story. We must add the aftermath of heart disease, tuberculosis, blindness, deafness, and other sequelae. We are dealing often with very sick children and those who may suffer serious consequences for years.

On a recent field trip across the country, I asked some 20 city health officers if public health nursing is important in communicable disease service. There was unanimous and emphatic assertion that it is not only important but essential, although as yet we seem not to have developed statistical means of proving it in figures. We have, however, a strong statement based on facts in *A Survey of Communicable Disease Hospital Needs.*[1]

* Read before the American Association of School Physicians and the Health Officers and Public Health Nursing Sections of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 22, 1936.

The outcome of these diseases, especially in infants and children of preschool age, is more likely to be favorable under good home care than it is in the hospital. . . . When home quarantine is not possible, hospital care becomes mandatory; when conditions for home care are unsatisfactory, or when the infection is unusually severe, or when complications, especially of a surgical nature, arise, hospital care offers the better prospect. Among the conclusions are: The home care of acute communicable disease utilizing competent, organized visiting nurse services, demonstrates an effective and economical method for the control and care of contagion. The adoption by the city of the policy of home nursing care for suitable cases, in addition to hospital care, should result in material improvement in the control of contagion within the home and in lowered mortality.

Granting that public health nursing is essential in combating a major health hazard, let us see to what extent it is meeting the problem. Table I shows the number of communicable disease cases and visits reported by 84 cities in the City Health Conservation Contest of 1935. Some of these visits were made by physicians, though the majority were made by public health nurses. Few of these visits were concerned with bedside care. They were the usual inspection and instruction visits made to effect quarantine and to avoid spread of disease.

TABLE I

Communicable Diseases

Number of Cases and Visits Reported by 84 Cities—City Health Conservation Contest—1935

Disease	*Cases*	*Visits*
Diphtheria	2,968	26,964
Scarlet Fever	36,429	178,013
Whooping cough	31,557	81,472
Measles	146,398	344,893
Total	217,352	631,342

From Table I we are able to get the average visits per case as reported in the City Health Conservation Contest.[7] As these figures are for the most part visits by health department nurses who do not give bedside care, it is of interest to compare them with corresponding figures of the Metropolitan Life Insurance Company nursing service, which is chiefly a bedside care service. This comparison is made in Table II.

TABLE II

Communicable Diseases

Average Visits per Case

Disease	*City Health Conservation Contest—84 Cities*	*Metropolitan Life Insurance Company Nursing Service*
Diphtheria	9.1	6.4
Scarlet fever	4.9	8.3
Whooping cough	2.6	4.9
Measles	2.4	4.6

As might be expected, the number of visits per case is higher when bedside care is included, with the exception of diphtheria.

Is the number of visits reported in the City Health Conservation Contest adequate? The number of visits should probably be twice as many, if bedside service is included, judged by the experience of the Metropolitan Life Insurance Company nursing service in this field as presented in Table II.

Another picture showing the extent of skilled nursing care for communicable disease is presented from the mortality records of the Metropolitan Life Insurance Company for the year 1935. The company is eager and willing to pay for this service to its acutely ill policy holders, either through its affiliation with visiting nurse associations or through its own nurses.

An analysis of the company's mortality records for communities in the United States (excluding Pacific Coast Territory) in which Metropolitan nursing service was available is given in Table III.

TABLE III

Nursing Communicable Diseases
Per cent of Fatal Cases Reported for Nursing to Metropolitan Life Insurance Company Visiting Nurse Service—1935

Disease	Deaths of Metropolitan Policy Holders in Communities with Metropolitan Visiting Nurse Service	Reported to Metropolitan Visiting Nurse Service		Died in Hospital
		Number	Per cent	Number
Diphtheria	269	36	13	31
Scarlet fever	322	54	17	41
Whooping cough	321	81	25	31
Measles	301	64	21	44
Combined	1,213	235	19	147 or 12%

Presenting these data in pictorial form gives us a more vivid illustration of the present lack of bedside nursing care for communicable diseases.

The significance of the figures in Table III and Chart I is that of the children with communicable diseases who died, 81 per cent had no nursing care through Metropolitan nursing service. We do not know what other nurses were visiting these cases, but it is reasonable to suppose that they were health department or school nurses who do not give actual nursing care. However, of the total number, hospitals gave care to 12 per cent. Potentially, then, we are failing to provide bedside care to 8 out of 10 children who die of communicable diseases. In the general population, I fear that the nursing facilities of the community fail to reach even a larger percentage of sick children.

At present, acute communicable diseases of childhood account for 8 per cent of the nursing case load of the Metropolitan Life Insurance Company, but in view of the mortality record and what is generally known about morbidity, this is still far below what it should be.

At this point we should consider

CHART I

Need for Nursing of Communicable Diseases
Diphtheria—Whooping Cough—Scarlet Fever—Measles

Cared for by Metropolitan Visiting Nurse Service

Not cared for by Metropolitan Visiting Nurse Service

Data from Mortality Records Metropolitan Life Insurance Company—1935

what the function of the public health nurse is in communicable disease service. This is summarized under 5 headings [2]:

1. Case finding, which includes the promotion of reporting and assistance in getting medical attention for diagnosis and treatment
2. Giving or securing and supervising home nursing care for the carrying out of orders of private physicians and of health departments or other agencies
3. Instructions to individuals, families, and the community regarding quarantine, isolation, nursing care, preventive measures, use of community facilities, and the importance of the whole communicable disease problem
4. Promotion of immunization programs among infants, preschool children, and others in accordance with health department policies
5. Assistance in making studies of epidemiology, behavior of disease in a given community, and results of nursing service

In this discussion we are concerned with all of these phases of public health nursing service rather than with any one phase.

The experience of one nurse during a busy winter day illustrates very vividly how the public health nurse fulfils these functions.

I recall a nurse who started out in the morning making a kindergarten inspection. Little Johnny turned up with a running nose and sore throat. She sent him home immediately with a note to his mother to call a doctor. The doctor diagnosed the case as scarlet fever. Later on this same morning she went into a home where a youngster had been in bed for several days with scarlet fever. The mother, in a 4 room apartment, was carrying out perfect isolation technic. The nurse had traced the source of infection of this child and learning that other children had been playing with him at the time of exposure, had warned the other mothers to look for symptoms of a cold, to put the child to bed if such occurred, and to call a doctor.

As she was leaving this home the nurse met some relatives who were coming to call. She took the opportunity to explain to them what the placard meant; what she was doing for the child, and how the mother was carrying out isolation. She stressed the importance of keeping their children away from crowds during that season of the year. She explained that there were some diseases for which specific vaccines existed so that the diseases could probably be prevented. She referred specifically to smallpox and diphtheria. Incidentally, later on she discovered that these mothers, impressed with the illness of the child in the home they were about to visit, took their children to the physician for toxoid.

Finally that same day, the nurse was called from a window by a poverty stricken mother frantic because her Tony had a fever. The symptoms indicated a communicable disease; the family could not afford a private physician, so the nurse called the department of health, reporting the symptoms. The next morning Tony was taken to the isolation hospital—another case of scarlet fever under care.

After this busy day, the nurse returning to her office, made out a special report of the visits made to communicable diseases. This was her share in the statistical study being made by the health department on the nurse's part in communicable disease control.

Our position is this—Communicable diseases take a terrific toll in human lives, human comfort, and human safety. They can, in certain instances, be wiped out; in other instances, greatly reduced. The public health nurse is a tremendous force in accomplishing eradication and control. There are 20,000 public health nurses in the country. Why do we not use all of them, whether they be employed by health departments, schools, industries, or visiting nurse associations, to do this job more completely and more successfully?

The answer is that we are beset with obstacles which we have allowed to block our path. The first of these is poor reporting of cases—a constant problem for health departments, physicians, schools, industries, and nurses. Here is one of the nurse's first responsibilities—she should not and does not diagnose but she can suspect. While not a diagnostician, she can be a top-notch "suspectician." Immediately she has the opportunity to direct families to proper medical service. We should count more and more on the nurse, whether employed by health departments, schools, industries, or private agencies, to be more active in case finding and case reporting.

As soon as a case is found, diagnosed, and properly reported, the next problem for the nurse is to provide needed nursing service. We face immediately the question—are placarding and instruction enough? or does the mother need help in actual nursing and continuous advice? By and large, health department nurses and school nurses do not give bedside care. This means that where such care is needed, the patient must be transferred to an organization giving bedside care such as a visiting nurse association. Hence, we are dependent on a very fine appreciation on the part of official agency nurses as to the value of bedside care, and their active coöperation in turning cases over to the bedside nurse. Is there a well established plan of transferral in most communities? I fear not. Is the visiting nurse equipped not only to give bedside care but also to carry out the same instructions as given by the health department and then to transfer the case back to the health department for necessary termination? As any one who uses New York City subways knows, any process of shuttling is cumbersome and trying. One problem here is that some health departments, legally responsible for communicable disease cases, feel that their nurses must visit regardless of what other agencies are also sending in nurses. A solution might be that health departments legally deputize the local visiting nurse agencies to carry communicable disease cases during the period when bedside care is necessary.

All of this points to the fact so well brought out in the *Survey of Public Health Nursing*[3] made by the N.O.P.H.N., that we are confused by too many local agencies engaged in public health nursing service. Hence the recommendation of the Survey that we should try to condense our service locally into not more than two agencies, one the official for health supervision and communicable disease control, the other a private agency giving bedside care as part of a family health service. In small communities, all of these functions may well be carried by one agency.

Health department approval for the giving of communicable disease nursing on the part of visiting nurse associations and Metropolitan nurses is a necessary prerequisite to the service. In 335 Metropolitan Life Insurance Company services, we find that 82 per cent have such approval, 7 per cent have it for certain towns in the area but not for all, 11 per cent have no approval. This is a definite handicap to the service and one that indicates lack of understanding on the part of some health officers. In many instances, these are lay health officers in small communities—a problem in administrative practice as a whole.

Some of the blame for our errors in communicable disease nursing lies at the door of the very person we are talking about—the nurse herself. Two factors may lead to her own hesitancy to do communicable disease nursing: the limitation of her preparation in this field, and a sense of fear due to her own lack of immunization. In *Nursing Schools*,

Today and Tomorrow,[4] it is stated that of the students who were graduated in 1932, 9 of every 10 had less than 2 months' training in communicable disease nursing. In the handbook *Some Facts About Nursing*[5] we find that in January, 1935, in a study of 1,311 schools of nursing, less than three-fifths of the schools provided experience in communicable disease care. In a recent study of 177 Metropolitan salaried nurses, it was found that only 60 per cent had communicable disease nursing experience during their hospital training. To make up for this, 92 per cent of this group have been given practical demonstrations by Metropolitan supervisors, and all have received study programs and written instructions. Undoubtedly, one point of attack is the school of nursing, which should include both theory and practice in the basic curriculum. For the 20,000 nurses now employed in public health nursing, postgraduate work, institutes, and demonstrations are greatly needed. The excellent *Manual of Communicable Diseases for Public Health Nurses*[6] published by the New York State Department of Health might profitably be used by every public health nurse in the country.

The immunization of the nurse is also a factor. The National Organization for Public Health Nursing advises that nurses be immunized against smallpox, typhoid fever, and diphtheria before employment, and against scarlet fever if the local medical advisory committee approves. In a recent canvass of 150 Metropolitan salaried nurses, the percentages immunized were: smallpox 99, typhoid fever 80, diphtheria 53, and scarlet fever 22 per cent.

It would seem that greater attention to the immunization of nurses would encourage their more active participation in the program.

We have blamed organizations, including medical and nursing groups, for our limitations in communicable disease control, but the layman, too, is at fault. There are some boards of directors which still hold back permission for the staff to do communicable disease nursing. The responsibility comes back to the health officer, medical advisory committee and director of nurses to inform such boards of the importance and safety of such participation, under proper supervision, appropriate restriction, and administrative and educational control. We need to win favorable public opinion of board members, and of families, to the service. Let us explode the fear that the properly informed nurse may be a carrier of contagion. After all, how often does one hear of a cross-infection being carried by a public health nurse? Why does no one worry about the transmission of disease by a doctor who may touch the patient and fail to wash his hands? And yet the nurse who visits the home, washes her hands before and after her visit, wears a gown, and carries out a scrupulous technic, has been such a source of suspicion. If a nurse is unsafe to do communicable disease nursing, is she not equally unsafe for any other service? When we realize that nurses are dealing constantly with undiagnosed cases in their most infectious stages, it oftentimes seems ridiculous even to go through the precaution of visiting communicable disease cases the last part of the day.

In summarizing and concluding this discussion, I would say that many lives are being wasted because we are not making more effective use of all public health nurses. To correct this, 5 aids are suggested:

1. Better understanding of the whole service of public health nursing in this field on the part of physicians, health officers, school personnel, industries, and the lay public
2. Reduction of the number of public

health nursing agencies in over-organized communities and a joint plan of procedure and referral of cases between local agencies

3. Proper preparation of nurses in undergraduate schools, and postgraduate education through institutes, staff education programs, and special courses for all public health nurses

4. Approval by all health departments of the participation of bedside nursing agencies in the program, and the setting up of standing orders approved by both health departments and medical advisory committees for bedside care in this service

5. Investigative and promotive activities by all agencies, concerning the volume of service, results of service, the follow-up of cases hospitalized, the control of secondary cases, the immunization of all susceptible groups, etc.

What more challenging opportunity before public health nursing today, than to assist in the control and eradication of diseases that take a heavy toll especially among children yet are preventable, curable, and should be curtailed or wiped out!

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Freedom of Teaching

. . . We have not yet solved the problem of severance from our faculties of incompetent or lazy teachers and investigators. The presence of this incubus on the faculties of all our colleges and universities is a considerable hindrance to full freedom of teaching in all its implications because of the false issues in that regard sometimes raised by such teachers. . . .

. . . If a faculty could be found competent to administer a course in common sense for college professors, compulsory attendance, graduation, and periodic reëxamination might be made a condition both of appointment and tenure. Such a faculty may not be dominated by our present mine-run of college presidents and deans.—Extract from article, Educational Discussion. Freedom of Thought, Speech, and Teaching, by A. J. Carlson, *Bull. Am. Assoc. University Professors, Jan.*, 1937, p. 40.

Staphylococci in Relation to Food Poisoning*

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THE cause of outbreaks of acute gastrointestinal disturbance, which are common in the warm months of the year, usually has to be determined by the laboratory worker. Previous to 1930 the organisms most often thought to be responsible for such outbreaks were members of the paratyphoid or Salmonella group. Efforts to recover these organisms from the incriminated foods were usually not successful. Six years ago we [1] investigated an outbreak of food poisoning which resulted from eating a custard-filled sponge cake, and definitely demonstrated that a staphylococcus was the causative agent. Although Barber,[2] as early as 1914, had proved that milk in which a white staphylococcus had grown gave rise to acute gastrointestinal symptoms when swallowed by man, no outbreaks of food poisoning had been traced to staphylococci from that time until our report in 1930. In 1934 Jordan and Burrows [3] reported 9 outbreaks, and since many others have been reported in the literature.

The widespread occurrence of staphylococci in nature makes it impractical to attempt to keep foods in an environment free from these organisms. Some of the problems which arise are difficult to solve, since we have found no experimental animals which are as susceptible as man when fed the enterotoxic substance. Added to these difficulties is the fact that under laboratory conditions the strains do not always produce enterotoxic substance of equal potency. Further, there is a great variation in the susceptibility of various individuals to this substance when it is fed.

Whether or not all strains produce the enterotoxic substance is of great public health importance. Nearly all workers are agreed that strains vary greatly in this regard. Jordan [4] showed that strains of staphylococci of diverse origin and different cultural characters are capable of generating in broth a substance which, when taken by mouth, produces gastrointestinal disturbance. Stritar and Jordan [5] studied 94 strains from various sources and found that there are no good criteria for the differentiation of various types of staphylococci. The "food poisoning" strains agree with other members of the group in not constituting a clearly marked division. They stated that "the power to provoke food poisoning is not limited to any recognizable variety of staphylococcus." On the other hand Stone,[6]

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using a specially prepared gelatin medium, claimed that the food poisoning strains liquefy gelatin, whereas no liquefaction evidences a non-poisonous strain. More extensive work is necessary before this question can be definitely answered.

Apparently few of the many staphylococcus strains are capable of producing the enterotoxic substance under natural conditions. Dolman [7] said:

> My results indicate that the food poisoning substance is probably produced by only a few strains of staphylococci, and that it is a special metabolite whose formation and excretion are favored in the laboratory by such environmental conditions as a semi-fluid medium and an atmosphere containing a high percentage of carbon dioxide—conditions which promote, respectively, abundant growth and increased cellular permeability with partial buffering. It is difficult to imagine that circumstances approximating these can be attained in foodstuffs contaminated by staphylococci. The apparent rarity of staphylococcic food poisoning may hence be explicable.

It is difficult to know how many cases of food poisoning occur in a community. Where extensive outbreaks occur the health department is usually notified, but undoubtedly there are many cases in which physicians are not called and which are not reported.

The possible importance of starch in the production of the food poisoning substance was pointed out by Jordan and Burrows,[8] who found that bacteria of various kinds, *i.e.*, staphylococci, streptococci, Proteus, *Bact. coli, Bact. aerogenes* and *Salmonella aertrycke,* grown under suitable conditions, especially on starch media, were capable of producing a substance which caused gastrointestinal reactions in monkeys. By successive transfers on starch media, they succeeded in restoring the enterotoxic property to strains which originally had possessed it and had later failed to produce the toxic substance. Bacteria which had never possessed this characteristic could produce the toxic material when grown on starch media. In contrast to the view of Jordan and Burrows,[8] Stone,[6] in outbreaks occurring in California, observed that "protein was the only consistent major ingredient of the food involved in every outbreak."

In recent unpublished work [9] with meat sandwiches, a volunteer who ate ham contaminated with a "food poisoning" strain of staphylococcus became ill, with nausea, vomiting, diarrhea and prostration. Of two other volunteers who ate bread contaminated with the same organism, one developed typical severe symptoms of food poisoning and was ill for several days; the other was unaffected. The foods were incubated for several hours following inoculation with the "food poisoning" strain of staphylococcus.

In addition to these experiments, we [10] have shown that staphylococci inoculated into the prepared filler of a custard-filled cake invaded the cake substance. After a suitable incubation period enterotoxic substance was demonstrated by human feeding experiments in both the filler and the cake. The contaminated food was non-toxic before incubation.

Our experience would lead us to believe that apparently no special conditions, such as Dolman [7] suggested, have to be met for "food poisoning" staphylococci to produce enterotoxic substance in foodstuffs. Furthermore, the above experiments would indicate that enterotoxic substance may be produced under natural conditions in foods that are high in protein content, as well as in those that are rich in starch.

The nature of the substance causing staphylococcus food poisoning is still obscure. Jordan and Burrows [11] have found that the active principle will not distill off, is not readily dialyzable, is markedly unstable to N/100 NaOH and unstable to heat in N/100 HCl

solution. It was completely removed from acid aqueous solution with ethyl ether or chloroform. It is not completely destroyed by exposure for 30 minutes to the temperature of boiling water.[12] The toxic quality does not disappear after storage at a low temperature for as long as 67 days, although somewhat weakened.

This substance does not seem to be of the nature of a true exotoxin, since repeated feeding of filtrates to 4 volunteers [13] failed to immunize them. Serum from "immunized" men and rabbits did not protect monkeys or rabbits when it was mixed with potent filtrates and injected intravenously; nor did such serum protect a human volunteer who swallowed it mixed with a potent filtrate. The enterotoxic substance [14] was found to be distinct from hemolysin, dermotoxin and killing toxin (for rabbits). The gastrointestinal poison was more resistant to heating than the other toxins, and was not neutralized by antiserum which was effective against the others. Dolman [7] reported one individual who had received several subcutaneous injections of staphylococcus toxoid, as a consequence of which his serum showed a high neutralizing power against the hemolytic, dermonecrotic and lethal properties of the exotoxin. This individual subsequently developed a severe attack of food poisoning following the ingestion of a filtrate containing the enterotoxic property.

Outbreaks of food poisoning traced to stapylococci have, for the most part, incriminated cream-filled pastry or cakes, but a variety of other foods, such as cheese, gravy, doughnuts, milk, ice cream [15] and meat sandwiches,[16] have also served as vehicles. Since the list includes some of our important foods, efforts should be directed toward controlling this type of food poisoning. Although refrigeration is valuable, it is not a complete solution of the problem. Products may become contaminated during manufacture and the organisms lie dormant or multiply slowly during refrigeration. Unless refrigeration is continued after purchase, incubation for a few hours at room temperature may be sufficient for "food poisoning" staphylococci to multiply and elaborate their poison. The amount of contamination may have an important bearing on the subsequent growth of these organisms in food.

We [17] have found that reheating custard-filled puffs and éclairs for a time and at a temperature sufficient to kill staphylococci does not impair the flavor or appearance of the product. This method, if properly carried out, should afford an effective safeguard for these foods.

During the past 6 years much has been learned about the staphylococci which cause food poisoning. Much remains to be accomplished in this field.

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Tularemia in Czechoslovakia and Austria During 1936 and 1937

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DURING the hunting season, from November, 1936, to January, 1937, an outbreak of human tularemia was reported along the Austrian-Czechoslovakian frontier, in the provinces of Lower Austria, Austria; and the provinces of Moravia and Slovakia, Czechoslovakia. The epidemic was preceded by a rather extended and severe epizoötic among the hares. There are on record 103 cases in Lower Austria, 150 in Moravia, and 62 in Slovakia.

The territory affected is a plain around the estuary of the River Duja at Thayo, and along the Morava River at March, this giving reason to suppose that perhaps the muskrat and the water rat might have had some rôle in spreading the disease among the hares. The search for cadavers of hares was almost without success, as the rather numerous foxes in the region affected had disposed of sick animals.

No information could be obtained as to the insects feeding on rodents mentioned. Two hares were found with abscesses along the backbone, showing such location and configuration as might suggest an attack by some bird of prey (hawk).

All persons affected had been in contact with hares—touching, dressing, cooking, or eating—followed a few days later by fever, chills, headache, general pains in the body, and swelling of the glands. In some cases the primary effect was a distinct ulcer on the fingers, ulceroglandular form, with peritrochlear and axillary glands swollen. There were numerous cases with conjunctivitis, blepharitis, with swelling of periauricular cervical glands. Glandular and typhoid cases were very few.

The specific agglutination test performed at the Bacteriological Institute in Bratislava revealed a rather high titer—from 640 to 5,080.

As there is a well founded belief that the disease must have existed in former years in Czechoslovakia, a special epidemiological commission is endeavoring to find by means of the agglutination test cases which might have occurred in previous years.

Institutional and Other Small Water Treatment Plants to Meet Unusual Conditions*

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THE design of small water treatment plants often presents problems more vexing than those of large municipal plants. In most cases it is not economically feasible to make an experimental study of the treatment of the particular water; it is necessary to be extremely economical, and in some cases one must design to meet the intelligence of the person who will have charge of the operation. In the work of rendering advisory assistance to governmental agencies, the Office of the District Engineer, Interstate Sanitary District No. 3, has had some experiences and worked out certain designs which may be of general interest.

The first survey by the incumbent District Engineer revealed that the water supply serving a certain group of about 400 persons consisted of water from a small impounded pool at the confluence of two overflow ditches from two lakes. This pool was near habitations and used, incidentally, for the disposal of some miscellaneous waste, for the watering of horses, and was even observed to be used for the washing of babies' undergarments. Is there little wonder that the life of many of these people was one spell of diarrhea after another?

In this case emergency chlorination was established and this was promptly followed by the installation of a commercial solution feed chlorinator. After the elapse of considerable time without the appropriation of the $15,000 fund recommended for a gravity type purification plant, plans were prepared for a 66" diameter pressure sand filter and pressure granular activated carbon dechlorinator with prechlorination and superchlorination. A pipe line was extended to one of the lakes.

After 5 years' experience with the above installation and 4 years' experience with a like and smaller installation, we are of the belief that pressure units are generally satisfactory where the raw water is not high in turbidity or bacterial content. The only unsatisfactory performance has been during 1 month of summer when plankton are on the rampage. A marked reduction in odor and taste trouble was overcome by applying a layer of powdered activated carbon to the surface of the sand filter after backwashing and bumping the filter to permit it to disperse in the sand bed. In both cases use has been made of two chemical pot feeders con-

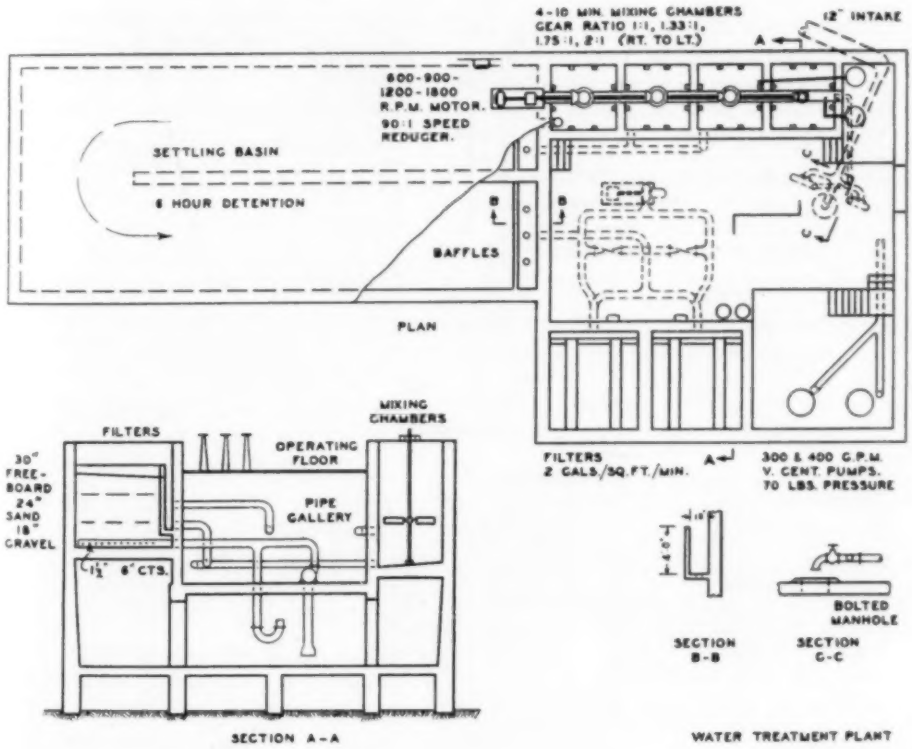
* Read before the Public Health Engineering Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 21, 1936.

nected to orifice plates, one for feeding lump ammonium alum and one for a compound in the form of a ball consisting of soda ash and sodium aluminate to aid coagulation and adjust the pH. Both units were designed on the basis of 2 gal. per sq. ft. per min. and called for a blind flange in the sand filter valve nest to prevent accidental by-passing. Backwashing is effected with purified water at such a rate as to effect 40 to 50 per cent sand expansion. It is desirable that the large pressure units be equipped with loss of head and rate of flow indicators. The 66″ diameter pressure filter plant with a 50 gal. per min. pump and chlorinator cost the government approximately $2,000 installed.

In one case with turbid and more highly contaminated river water, where economy and convenience so dictated, a pressure sand filter and a pressure carbon dechlorinator was installed following mechanical mixing and 6 hour coagulation and settling. The water is superchlorinated ahead of the filters. A special feature is provision to draw the settling basin down when completing a filter run so as to provide space to receive the backwash water which is introduced into the mixing basin where alum and lime are added as required.

The second problem was that of purifying river water to replace an existing shallow dug well supply which contained 11 p.p.m. of iron. Test wells revealed only iron containing water in the vicinity. This river is only slightly contaminated and seldom turbid, but it is high in color due to tannates, gallates, and organic acids from the swamps and

FIGURE 1



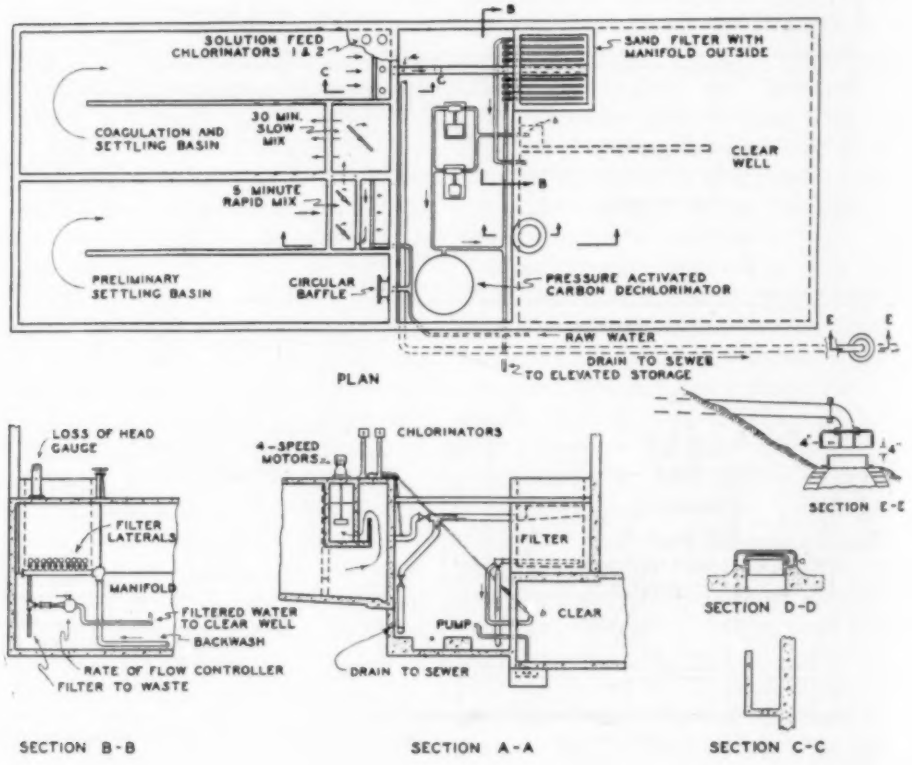
the logging operations conducted along the river. Being unable to install and operate an experimental plant, it was considered desirable to provide as much flexibility as possible in the treatment plant.

Figure I is a schematic drawing illustrating the main features of this, an early plant. The plant is built behind a power dam but the fall was not sufficient to avoid low lift. It has duplicate raw water and pure water pumps and duplicate chlorinators. For mixing of the chemicals there are provided 4, 10 min. mixing basins so arranged as to make it possible to effect 20, 30, or 40 min. mixing as desired. The stirring devices operate from one shaft connected to a speed reducer and a 4 speed motor (600, 900, 1,200 and 1,800 r.p.m.). The peripheral speed of the paddling is reduced from 3′ per min. to 1′ per min. by means of different ratio of gearing between the common shaft and the stem in each basin to which the paddle is attached. These gears can be replaced by gears of other ratios if desired. Each stirring device is provided with an independent clutch.

The coagulation and settling basin provides a 6 hr. displacement and the filters are designed on the basis of 2 gal. per sq. ft. per min.

Backwashing is done by means of a centrifugal pump drawing from the clear well. Chlorine can be introduced ahead of the mixing basins, ahead of the filter, as water flows to the clear well, or as it is pumped to the distribution system. The settling basins are covered by concrete slab and the entire structure is housed.

FIGURE II



The fire insurance people insisted, in the case of this lumber mill town, that means be provided for emergency use of river water for fire protection in view of the abandonment of the well which provided 400 gal. per min. This was done by providing a raw water outlet over a bolted manhole in the top of the clear well and the maintenance of one of the two chlorinators trained on this line at all times. This was considered passable in view of the fact that the contamination in the raw water never exceeded a *B. coli* index of 10 and the chlorine demand was low. This feature is illustrated in Figure I.

Chemicals are fed by oscillating tray type of dry feeders, alum being introduced into the first basin, lime in the second, and powdered activated carbon in the second or third basin when required during the summer. Complete color removal is effected with the proper dosage of alum.

This design for a plant of ¼ million gal. daily capacity cost the federal government $18,000. Credit for the detail of the design, based upon fundamental principles laid down by this office, is due Firman H. Brown, formerly in our employ.

Several plants to purify Missouri River water have been designed in this office, and constructed and operated under the general advisory supervision of this office. These are literally vest-pocket editions, and probably involve the best modern principles to a greater extent than any of their size. Their capacities range from 50 to 100 gal. per min.

Figure II illustrates the general layout and details of special purification and public health engineering features. With a water varying considerably in chemical constituents and from a very low to a 1,200 p.p.m. turbidity, it was desirable to provide preliminary settling as well as flexibility.

The water can be pumped to the preliminary settling basin or directly to the rapid mixing chamber, thus bypassing the preliminary settling basin. Other special features may be enumerated as follows:

1. A 5 min. rapid mix by means of two stirring devices. They are operated separately by 4 speed motors, 600, 900, 1,200 and 1,800 r.p.m. so reduced through gears as to provide a peripheral paddle speed of 3′ per min. at 900 r.p.m. This permits of 2 faster speeds and 1 slower speed than that usually prescribed.
2. A 30 min. slow mixing basin with 1 stirring device. This is operated by a 4 speed motor so reduced through gears as to effect a peripheral speed of 1′ per min. at a speed of 1,200 r.p.m. This permits of 2 slower speeds and 1 faster speed.
3. Six hr. detention period in both the preliminary and/or the coagulation-settling basin.
4. The use of a circular baffle at the inlet.
5. Duplicate chlorinators with one usually chlorinating ahead of the gravity sand filter and the other trained on the clear well influent. Chlorine can also be applied ahead or after mixing and to the suction of the pure water pumps.
6. The placing of the filter manifold (lateral header) outside the filter with provision for brushing or rodding the inside of each lateral. In this case this feature was necessary because the filter was too small for a header.
7. An activated carbon dechlorinator which not only insures a delectable drink of water, but also, and most important in the case where scientific operation is lacking, permits of superchlorination of the water. Superchlorination then takes care of variation in chlorine demand.
8. Duplicate raw and pure water pumps.

Other important public health engineering features are:

1. The separation of the settling basin and the clear well by the pipe gallery. Water plants should not have a common wall between these two features.
2. A concrete slab or roof over the coagulation and settling basin, as this is a stage in purification and should be protected against contamination. Where gratings are necessary, they may be permitted within that part covered by a building, provided the opening is curbed to prevent the introduction of floor washings.

3. The construction of the filter with independent walls and bottom so as to guard against leakage into the clear well. An air space should be provided between them.

4. The avoidance of a physical connection between the plant and a sanitary sewer or drain of any type. This is illustrated in Section EE on Figure II.

5. The provision of overlapping covers and monolithic concrete pedestal for all manholes as illustrated in Section DD.

The public health principles enumerated above are as applicable to large plants as to small plants.

Two such plants have been in operation about 1 year and have justified our fondest hopes that they could be operated effectively by the average stationary engineer.

One like plant of 120 gal. per min. capacity is now being built for use on creek water. The principle is the same but the preliminary settling basin is eliminated and both mixing basins are placed at the beginning of the coagulation-settling basin.

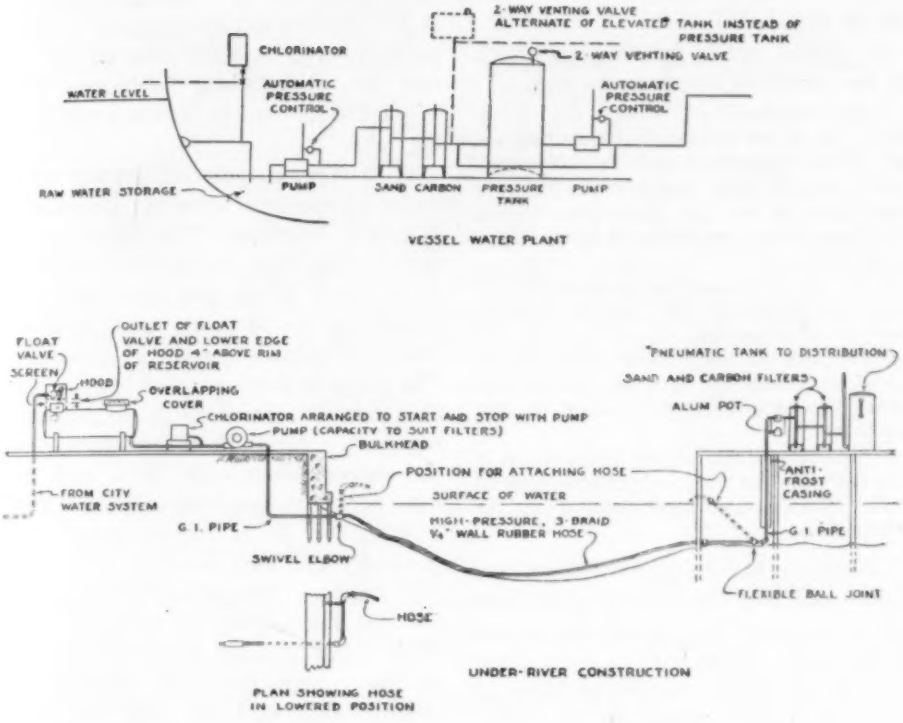
The 50 gal. per min. plant proper cost the government about $17,000, whereas the 100 gal. per min. plant cost approximately $25,000.

About 5 years ago the District Engineer was faced with the problem of designing water purification equipment for government vessels which regularly ply the Great Lakes. Since these vessels could load mid-lake or water of low bacterial content, tubidity and organic matter, chlorination was recommended. A decided advantage from chlorination is that all the domestic water can be treated, whereas with the other methods of treatment allowed on interstate vessels, distillation and sand filtration followed by ultra-violet ray or ozone sterilization, it is practical to treat only the drinking-culinary water. It was recognized immediately, however, that a seaman who was accustomed to dipping water from overboard and did not believe in our theory of disease transmission, would continue to do so unless the water was as palatable as the mid-lake water. This deduction led to the conclusion to provide dechlorination after superchlorination. The superchlorination gives added protection against variation in chlorine demand. Due to erroneous information, it appeared that the commercial chlorinators then on the market would not function efficiently on so low a flow as 4 gal. per min. The flow was thus limited because space available dictated the use of 20″ pressure filters. This led to the development in this office of the SKM Hypochlorite Feeder which makes use of capillary tubing as the orifice of control of the flow of the solution. A description of this device was given before this Section and was published in the *Journal* of this Association October, 1933.

The first installation involved superchlorination followed by granular activated carbon dechlorination. The water was chlorinated as loaded and pumped through the carbon filter only about once a week to replenish the pure water supply. Under the condition on the vessel, the filter was subject to high temperatures. Although we always had residual chlorine in the water as it approached the carbon, the unit became a veritable incubator. This was first attributed to lack of filtration, but preceding new and bacterially free carbon by filtration failed to correct the condition. This trouble was completely corrected when means were provided to keep the carbon at a reasonable temperature through constant use. This experience has convinced us that activated carbon dechlorination should be preceded by filtration and maintained at a reasonable temperature.

To effect the proper temperature in a room of high temperature, a system was devised whereby the cool water from the ship's raw water storage tank

FIGURE III



is automatically passed through the treatment unit as water is drawn. An illustration of two types of installations appear at the top of Figure III.

After periods of operation from 2 to 5 years on 5 government vessels, the writer is convinced that the application of chlorine by the means devised is satisfactory and practical under these circumstances. The automatic plants have operated satisfactorily and the crews now report the absence of the former spells of diarrhea which periodically swept the entire crew, and the cooks mention the absence of "that tarry taste."

The Office of Interstate Sanitary District No. 3 is now faced with the problem of effecting purification of lake water for a government station located in the lake away from shore. The problem is that of purifying small quantities of contaminated surface water for populations of 5 to 15 persons. This problem has never been approached scientifically, but it becomes of greater and greater importance as the waters adjacent to certain resort hotels and residences become more highly contaminated.

Our office recently made recommendations regarding a government station built on piles 500' from shore. A new $3,000 well water plant was condemned because the water was highly contaminated. A satisfactory well at this station is not possible because the upper 15' of the casing would be surrounded by highly contaminated water (dilute sewage) and the casing terminates in limestone near a large city. The lake water was beyond treatment, so recommendations were made to pipe the city water across the river channel under

certain special conditions. The recommendations are illustrated in the lower part of Figure III.

Of special public health significance are the following factors:

1. The avoidance of piping city water directly across the channel thus protecting the city system against the entrance of contamination through leaky joints when negative heads occur in the city distribution system from heavy withdrawal during fires, the draining of mains, etc.
2. The physical separation between the delivery end of the city line and the receiving reservoir or surge tank.
3. The lack of under-water joints in the line of the station due to using high pressure rubber hose which can be secured in 500′ lengths.
4. Superchlorination of the water before it is passed under the river with chlorine residual check, filtration and dechlorination on the station side.

No pump will be permitted on the station side and therefore it is not seen how a negative head could be created in this under-water line.

A serious study of the problem of purifying small quantities of water which is subject to varying degrees of contamination, has been begun by our office. In the development thus far, there has been borne in mind the desirability of being as practical as possible, to keep within the scope of the imagination of the average stationary engineer. In the case of the stations on the Great Lakes the cost of the plants will directly reflect the number installed during any given time. Therefore, extreme economy is being practised.

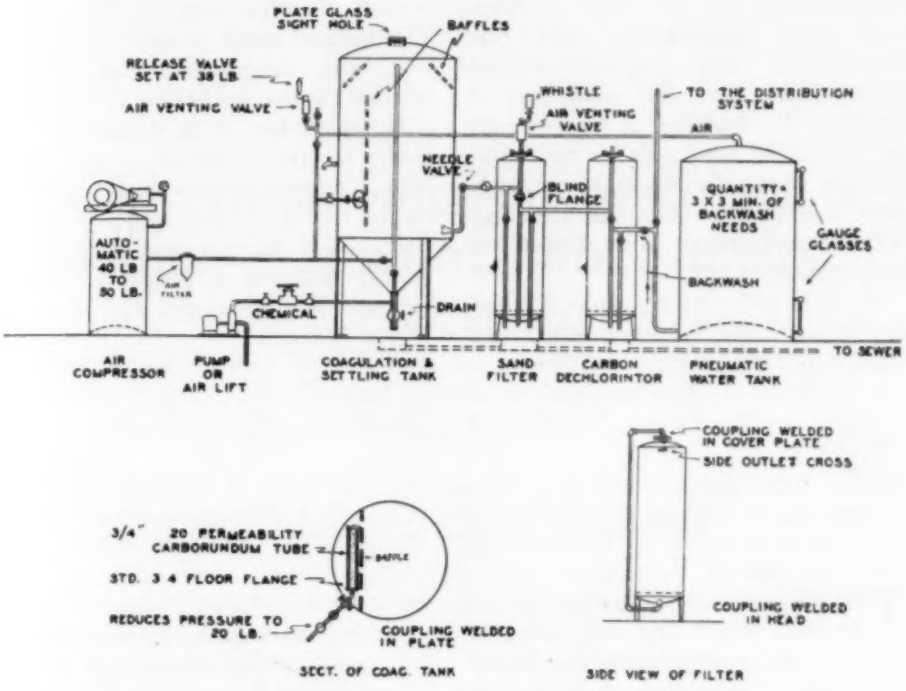
Figure IV illustrates an experimental plant as it has been built at a breakwater station opposite Chicago. It is a 300 gal. batch treatment plant. This plant is for those cases where the water requires coagulation and settling.

In the interest of economy it became apparent that money could be saved on pumps and a stirring device, by the use of compressed air. As illustrated, compressed air is used to mix the chemical and the water, to force the settled water through the filters, to maintain pressure in the distribution system and to force purified water upward through the filters for backwashing purposes. Air might also be used to lift the water from the lake.

With the coagulation-settling tank under no pressure, water is pumped into it until it overflows. The proper quantity of high test hypochlorite in powdered form, alum, and lime are introduced into the large tee near the pump which is provided with a screw cap. The pump is then operated long enough to convey the chemicals to the coagulating tank. Air is then introduced into the carborundum tube at a sufficient rate to effect rapid mixing, and after 5 min. the air is valved down to a predetermined rate to effect 30 min. of slow mixing. The air is then turned off and the floc allowed to settle for 6 to 24 hr. Air is then applied to the top of the coagulating tank through the overflow pipe and the settled water is forced through the sand filter and carbon dechlorinator to the pressure tank as required. When the coagulating tank empties to the point of the outlet, air passes to the whistle on top of the sand filter and gives the alarm, indicating that the air should be shut off. To backwash the units, air is applied to the top of the pneumatic tank. While each daily batch is settling, service is rendered from the pneumatic tank by the maintenance of air pressure on top of this tank. The release valve set at 38 lb. serves to maintain house pressure and gradually to release the excess air in the pneumatic tank.

It is thought that the advantages of aeration, superchlorination, and long time settling may make it possible to purify water which is beyond the safe limits established by Streeter of the Public Health Service for constant flow municipal plants on the Ohio river.

FIGURE IV



BATCH WATER TREATMENT PLANT

The 300 gal. plant with all tanks galvanized, cost the government approximately $600. It has been operated thus far only sufficiently to report that it is satisfactory mechanically and the air mix appears, from visual observation, to produce a satisfactory floc.

Several batch treatment plants using two 8′ by 8′ redwood tanks as coagulation-settling tanks are now being built at government agencies. Settled water will be drawn from one tank while the other tank is in process of being filled, coagulated, and settled. Units of this kind might be practically applicable and desirable as to cost, for small villages, resort hotels, and groups of summer residences. With the open tank unit it will be necessary to pump the settled water to the pressure filters. Stirring for mixing and coagulation may be accomplished by standard stirring mechanisms or by air. The limit of capacity of this type of unit seems to be only the size of tank or the frequency with which batches might be prepared. Where it is desirable to make but one batch a day, possibly 20,000 to 30,000 gal. would be the limit, but where batches might be made at will, it is reasonable to expect that, due to the quiescent condition of settling, a batch could be made every 2 to 3 hr. At 3 hour intervals and a 20,000 gal. unit, the capacity would be 160,000 gal. per 24 hr.

It is planned to study the application of stone filters, especially the type that can be scraped mechanically. It is generally recognized that the material that collects on stone filters forms a growing media for bacteria and after that the

effluent is worse than the influent. However, no study has been made to determine their serviceability with prechlorination and superchlorination. Stone filters have the advantage of avoiding the burdens of backwashing and would be applicable to small lake stations where the water is relatively pure and where only the drinking-culinary water needs to be filtered and dechlorinated.

A study will also be made of filtering through disc of composition wall board. The discs would be replaced instead of attempting to clean them. This method could be used in conjunction with coagulation and settling, whereas the floc would clog a stone filter.

In conclusion, it is desired to give credit for the detail of design, based upon fundamental principles laid down by the District Engineer, of the 50. 100 and 120 gal. per min. gravity plants, to Arnold Nesheim, a designing sanitary engineer, now associated with the U. S. Indian Service.

Indians Donate to Red Cross

THERE is one community in America which has not asked or received any relief during the depression years. It is not a large community, but its coöperative organization has made possible the meeting of all human want without doles or relief grants.

This Indian community of Metlakahtla in the Annette Islands in southeastern Alaska has wired the Commissioner of Indian Affairs, John Collier, its desire to donate a thousand dollars to the Red Cross for flood relief. No government official solicited or suggested this action. It came unasked for a free will offering. . . .

Taking advantage of their location, lying within the boundaries of the salmon fishing industry, the Tsimpshean Indians have built up a profitable fishing business and erected their own cannery. The community profit from the cannery is $70,000 a year, which is used to support the public utilities of the village. In addition, the natives employed in the cannery receive about $75,000 a year in wages. The cannery is operated under the general supervision of the Office of Indian Affairs of the Department of the Interior.—Dept. of the Interior, Release Mar. 6, 1937.

The Identification of Streptococcus of Mastitis in Routine Milk Samples*

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BOVINE mastitis is recognized not only as an economic but also as a public health problem. It may be caused by a variety of microörganisms and may present clinical conditions of the udder and chemical changes in the milk that are not necessarily dependent on the type of bacterium involved. A variety of laboratory tests on the milk have been suggested as diagnostic procedures in addition to physical examination of the udder. Bacteriological methods are preferred because they appear to give the best results in early cases. These methods should include not only the demonstration of streptococci but also identification of the types involved.

About 90 per cent of streptococcus strains causing bovine mastitis can be classed as *Streptococcus agalactiae*. The cultural characteristics are: (1) hemolysis on blood agar plates varies from gamma to alpha prime or alpha type; (2) usually long chains in preparations from broth or uncurdled milk cultures; (3) in litmus milk, acid with curdling and reduction of color starting from the bottom of the tube; (4) hydrolysis of sodium hippurate; (5) esculin not split; (6) rough growth in broth. The method of isolation of the organisms consisted of some form of preliminary incubation of the samples showing streptococci in chains, followed by plating on blood agar.

Four hundred and forty-one strains from 630 routine milk samples were isolated and classified. Of these, 52 per cent were *Strep. agalactiae* and 34 per cent were *Strep. lactis* or *Strep. fecalis*. *Strep. hemolyticus* was found only once. "One hundred and forty of the 228 strains of *Strep. agalactiae* were obtained from samples giving high cell counts (over 500,000 per c.c.) and showing streptococci in the direct microscopic smear of the unincubated samples; 60 were from samples showing streptococci and low cell counts (under 500,000 per c.c.) and 28 were from samples with high cell counts only." The finding of long or short chains of streptococci did not correlate with ability to isolate this organism.

It is believed that routine bacteriologic examination of composite milk samples, followed, when indicated, by examination of milk from individual animals, will often reveal mastitis infection in the absence of physical symptoms and will result in early segregation of affected cows.

* Abstract of a paper read before the Laboratory Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 22, 1936.

Recent Progress in Health Education*

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HEALTH education has always been inseparable from medicine and public health. Pasteur probably spent as much energy explaining his discoveries as in making them. Jenner, Lister, Chadwick, Simon, and Biggs were health educators perforce. Many successful physicians and public health men have spent much time in health education. Nevertheless, health education is among the more recently enucleated subdivisions of public health. It has only emerged in recent years as a specialized group of knowledges, skills, and technics.

Our knowledges, skills, and technics in health education are still incomplete and defective. This is due to: the youth of the work; changes in educational methods; lack of integration with related fields, such as education and psychology; preoccupation on the part of school and health administrators with other matters; dispersion of interest among many groups—teachers, physicians, nurses, health officers, and others. Nevertheless, encouraging advances are beginning to appear in this field. If properly nurtured, this infant may grow to become a leading scion of public health.

Health education is defined as "the sum of all experiences which favorably influence habits, attitudes, and knowledge relating to individual, community, and racial health."[1] Its importance can no longer be overlooked. Smillie[2] emphasizes its special significance in the United States:

> The average American will not coöperate with, nor support a public measure he does not thoroughly understand and approve in its principle and its detail. Thus, the health officer is compelled to inform the public fully concerning his plans and policies in order to secure the community's support for his program.

Wilbur[3] says:

> We are grasping the fact that education is not a mere transfer of information from one mind to another, but that it is a manifold process by which a growing person learns how to operate under his own power and will. Particularly in the sphere of health we must learn by doing, and what we do must be done with understanding.

Health education is divided into 3 major fields, distinct to an unfortunate degree at this time:

1. Public Health Education, or Health Education of the Public, is that part of health education that takes place in home and community. This is the field that concerns health officers and executives of voluntary health agencies most directly.

2. School Health Education is that part of health education that takes place in the school or through efforts organized and conducted by school personnel.

3. Health Education of Professional

* Read at a Special Session of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 20, 1936.

Groups has to do with efforts conducted either by the professional school or the public health agency to increase the public health knowledge of public officials, physicians, medical students, nurses, teachers, sanitary officers, statisticians, bacteriologists, and other professional people.

ADVANCES IN HEALTH EDUCATION OF THE PUBLIC

In this field, we have usually failed to distinguished between health education and health information. It is one thing to inform people of health facts; another to have them modify their conduct on the basis of this information. The frequency with which they do so depends upon their education. Permanent improvement of health conduct is probably rare with present methods.

We have tended to confuse health publicity, propaganda, and service with health education. Overemphasis on them may actually impede true education. Too much or poorly directed propaganda often repels the intended convert. Providing health service such as school health examinations and diphtheria immunizations does not of itself lead people thenceforth to seek these same services on their own initiative.

Despite these faults, there have been several recent occurrences which indicate advancement.

1. *"We can Stamp out Syphilis"*—Probably the most outstanding recent event in this field is the admission of the word syphilis to the American drawing-room. For years, we have known more than enough to control syphilis. Methods used in the U. S. Army, in Japan, and in Sweden have proved effective. The traditional "hush attitude" of the public regarding venereal diseases has thwarted most efforts, and year after year syphilis has taken its unnecessary toll. It has included the so-called "innocent victims" whose ignorance was far more significant than their innocence. Health departments and the American Social Hygiene Association have hammered for decades at this closed door. Their efforts were finally rewarded when a wise public health official made an issue of his exclusion from a broadcasting studio because his address mentioned syphilis. This precipitated a nation-wide discussion leading to an opening of that door.

The press in many cities has now lifted its ban on this word. *The Readers Digest* abstracted an illuminating article on syphilis and offered reprints at cost. Since July, nearly 300,000 have been ordered.[4] A new talking picture on syphilis is meeting unprecedented success. Health departments are obtaining financial support for promising plans to control this scourge, the success of which will depend largely upon education.

2. *Reënlistment of the Medical Profession in Health Education*—The past few years have seen a renewed interest in health education by the medical profession. There never was a better time or place for health education than when the individual sought aid from his physician.

The American Medical Association through its Bureau of Health and Public Instruction conducted 31 dramatized broadcasts in 1935.[5] They have been arranged with unusual skill, and are to be repeated this year. Accepting commercial advertisers' estimates that only 1 per cent of the radio audience responds to offers of printed or other materials, these programs reached a maximum of over half a million persons. Several state and more county medical societies have arranged or coöperated with others in radio broadcasts.

The medical and health exhibits at

the larger expositions arranged by medical societies reflect this increased interest in health education by physicians. The Century of Progress and the Texas Centennial are examples. State and county medical societies and their auxiliaries in many places are conducting traveling exhibits.

Medical societies are organizing speakers' bureaus, offering assistance to voluntary public health agencies. There is more active participation by practising physicians in local health department activities than formerly. The Detroit Plan is well known and is being emulated elsewhere. The Health Officer of Baltimore reports that in 1934 one-fourth of all diphtheria immunizations were done by private physicians.[6]

Several localities are following the plan established by the New Jersey Medical Society wherein each physician agrees to set aside 1 office hour, known as the public health hour, for immunizations, periodic health examinations, and the like.

Leaders in school health education were evidently impressed by the number and good counsel of physicians attending the 1935 Iowa City conference on school health education. One committee of this conference, composed largely of teachers, reported, "When county medical societies and other such organizations share the responsibility for a coöperative arrangement, more effective work is done than when the school takes the sole leadership."[7] This conference heard from Cabell County, W. Va., that the County Medical and County Dental Societies take the lead in a dual program of medical participation in the community health program.[8]

Encouraging and necessary as this advance is, it presents one danger—physicians may fall into the same errors committed by health officers and nurses, confusing information with education, overemphasizing propaganda and service, and overlooking education. This is especially serious in the schools. The physician has an important responsibility in advising the teacher regarding *what* to teach. Without special training in educational methods, he has no place in the classroom trying to show the teacher *how* to teach.

3. *The Motion Picture in Health Education*—The motion picture is becoming a valuable aid in teaching. Films especially prepared for this purpose are increasing in number and improving in quality. Newly constructed city schools and auditoriums are usually equipped with projection facilities. Portable projectors for use in smaller schools are selling rapidly.

Nearly 10 years ago, Lee K. Frankel and I pleaded with one of the major film executives in Hollywood to produce a play dramatizing some of the outstanding events in preventive medicine. We left him unmoved. The past year has seen produced "Life of Louis Pasteur" and "The White Angel." These were not only box office successes, but have proved to be "experiences which favorably influence habits, attitudes, and knowledge relating to health." This was possible only because some degree of education had prepared the public to enjoy the drama and utilize the information presented. These plays have lifted horizons in health education. It never occurred to us that people would pay generously for being educated in health.

4. *Radio*—The radio is undoubtedly a potent force in education, since it is now found in three-fourths of all homes in the United States,[9] but its appropriate use in health education is still obscure. Turner[10] found only 1 person per 1,000 who heard 4 State Health Department broadcasts in a given week. Kirkpatrick[11] shows the radio to be a double-edged sword, since 25 per cent of his listeners reported resolving not

to buy the goods advertised because of disgust with the radio program.

Some progress has been made recently in solving these problems for health education. The American Medical Association broadcasts have been mentioned.[5] In Rochester, N. Y., a broadcast sponsored by the County Medical, Dental, and Tuberculosis and Health Societies resulted in the mailing of 45,820 copies of the talks in response to requests.[12] The success of the Chicago Health Department broadcasts seems generally accepted. For several years, the Los Angeles County Health Department has produced weekly radio dramas based on actual occurrences. Several commercially sponsored broadcasts have met with success and scientific approval.

It is not generally known that broadcasting stations and the Federal Communications Commission are sensitive to protests concerning false health advertising and quacks.[13]

Conclusions reached thus far seem to be that dramatization is important; that skilled speakers or actors are required; that the radio serves somewhat the same function as the billboard, making a temporary impression and perhaps opening the way for more detailed presentation through other means. It would seem wise for health agencies not to attempt broadcasting in the absence of expert assistance. Such attempts are often attended by the danger of ineffectiveness, and may actually exert a negative influence.

5. *Museums and Exhibits* — State health departments, medical societies, and voluntary health organizations are using exhibits more extensively. The Dresden Museum of Hygiene has made a lasting impression. Plans are already under way for health museums at the 1939 fairs in New York and San Francisco. This Association's Committee on a Museum of Hygiene is making steady progress. It already distinguishes between a popular museum designed to draw crowds and a teaching museum which must aim at completeness. It points out that any museum must have a continuous and competent publicity and promotion program; it must be combined with a proper community program. The technic of presentation is more important to popularity than the selection of subject matter. Performance by the visitor of some act in connection with an exhibit aids in fixing it in his mind. Museum fatigue must be studied and avoided.[14]

Hygiene museums should be an attractive field for philanthropists who may be interested in public health. They have the advantages of uniqueness, usefulness in perpetuation, a tangible monument to the donor's memory.

6. *Publications* — Although medical men are little given to journalism, books, magazine and newspaper articles devoted to health subjects are increasing and improving. Medical men have been more attracted to authorship in recent years, and have in general acquitted themselves well. The American Medical Association is sponsoring a series of popular health books, the first of which, *Healthful Living*, by Diehl, has already appeared. The National Health Council has revised its series of health booklets.

7. *U. S. Public Health Service Office of Health Education*—Early this year, the Surgeon General announced the establishment in the U. S. Public Health Service of the Office of Health Education. Its purpose is to carry out experimental studies and assist those interested in health education. This is the first time the Service has dignified this sub-division of public health by the establishment of a separate office.

8. *Precision in the Choice of Methods* —There has long been a tendency to

judge our work on the basis of effort expended rather than results accomplished.[15] There is evidence from many sides that health educators are attempting to analyze, evaluate, and select their methods. Self-appraisal is becoming a watchword in health education. We are beginning to realize that a problem in health education requires technical skill.

The aim is: (1) to arouse curiosity, (2) to enlist sympathy, (3) to impart information, (4) to lead to action. This sequence can develop only when we have full command of appropriate methods and a thorough understanding of the audience. Audiences differ enormously. Individual and collective prejudices, superstitions, susceptibilities must be recognized by the health educator and dealt with much like the current of a river which can be gently diverted but not suddenly reversed. Galdston says:

> Bread is the staff of life, and yet how different the breadstick of the Italian from the pancake loaf of the Armenian; though each is bread, still will the one be eschewed in preferment to the other—one's own bread. It is for us to be mindful of man's preferments in instruction as in bread.[16]

When we come to precise selection of methods, it is the ambition of those specializing in health education of the public to be able to answer promptly and specifically such questions as: Given adequate facilities, what is the best way:

> To bring about an effective tuberculosis control program in a negro community?
>
> To obtain a high proportion of smallpox vaccinations in a Polish community?
>
> To obtain a high percentage of tuberculin tests and X-rays in a city school having a large proportion of "conscientious objectors"?
>
> To persuade expectant mothers in a rural New England community to seek early medical care?

The answers to these questions may not include fundamental educational processes, although they could be made to do so. They will, however, lead to clarification of our procedure, and will increase the value of health education as the term is now generally conceived.

Such questions present many facets, and each must be studied if we are to find an answer which will avoid the debacle of "talking health in Polish to Greek immigrants."[17] It is not enough to decide what to do in health education of the public. We must carefully study the complexities of the group in which it is to be done, select the tools with which to do it, and use these tools with skill based upon experience.

A method of identifying and measuring health attitudes in different groups has been suggested[18] and is being tried. In Detroit, "health guilds" are organized by the Health Department, each recruited from an existing community interest.[19] Letters and post-cards are being tried to reduce the number of unproductive nurse visits. One letter is written in several ways, and a close score kept on the effectiveness of each. It was found that an unstamped return envelope addressed to the health officer and marked "personal" elicited more replies than a business reply card on which the postage was prepaid.

There is much better discrimination as to what to teach than formerly. We are learning to distinguish between the "Grade A" and "Grade B" facts referred to by Armstrong[20] and to disseminate them accordingly. Health education is emerging from the "whoopla era" to one of sustained serious effort. The spectacular pageants and paradés of a few years ago are being abandoned in favor of steady, continuous pressure by sounder methods.[21]

ADVANCES IN SCHOOL HEALTH EDUCATION

School health education advances may be less familiar to this group.

They are profound, and significant to other forms of health education. Methods pursued by teachers will prove helpful in health education of the public. As our methods for health education of the public become more refined, they will follow more closely the fundamental educational principles developed in the schools.

These advances forecast the dawn of a new day for the health officer. He will have a future generation to deal with which is already familiar with the health problems of the individual and the community.

For years we have bombarded our allies, the school teachers, with criticism, much of it destructive. We have carried the unquestioned authority accorded us in the hospital into the school. We have complained of content of health courses without offering a better substitute. We have scoffed at the teacher's lack of health knowledge without serious effort to inform her. We have complained of lack of results. At last, teachers have taken up a careful analysis of their own situation. And, this is probably less in self-defense than in enthusiasm for a great cause which we have poorly espoused.

1. *Fundamentals Generally Accepted* —It is pretty well agreed that

> . . . the problem in education today is no longer merely that of learning a few specific skills, habits, and attitudes which are for a specific task; it is, in addition, the problem of securing the ability and the desire to change continually and adapt oneself to new discoveries. Adaptability is most essential if one is to meet happily and successfully the world's changing complexity.[22]

Health authorities should meet their responsibility of advising what to teach. The teacher, on the other hand, should decide when and how to teach.[23]

2. *Integration of School Health and of School and Community Health*— Health is not an object which can be permanently possessed or not possessed, which can be measured accurately, which can be invariably changed at will. It is a way of life. It is influenced by many factors, not all of them controllable, few of them static.

The present school health education program has developed from the gradual converging of three separate streams of thought: the old hygiene instruction largely instigated by the W.C.T.U.; the school health service program introducing the physician and nurse into the school system; and the physical education program. A fourth stream, mental hygiene, is now making itself felt. Influencing the school from another direction has been the development of the community public health program. The time has come to integrate these and all other forces which influence the health of the school child.

Not for much longer will school health be a distinct activity separated from all other public health work. Progress has been made in correlating school health work with that of the community, and in correlating it within the school.

Community health service is inseparably linked with health education. The school has the responsibility of being the connecting link between the various agencies contributing to health and protection of the school child. Teachers, nurses, parents, representatives of the health department, personal physicians, and the children themselves must work together in enriching and planning the curricula.[24]

Kalamazoo has made progress in this direction after many months were spent on integration. So many agencies of the community and departments within the school system were found to be involved in health matters that a "chairman of health-contributing agencies" was appointed. This chairman arranged series of meetings and con-

sultations, and a program of procedure was unanimously agreed upon and published.[25]

Shaw has said:

> Health lends itself well to integration with other subjects because of its close relation to the whole of life. There is scarcely any subject which children might select for study or investigation which has not some relation to health.[26]

3. *Curriculum Building*—Since health is so vital a factor permeating the daily life of the school child, teachers are concluding that health teaching need not necessarily be confined to formal class periods devoted to hygiene, physiology, or similar subjects. The modern curriculum is built around units of work. These units in turn are based upon a careful analysis of the demands placed upon the good citizen by his present environment. Such demands invariably include health problems.

Virginia has recently revised its whole public school curriculum on this basis

Another example is in Cattaraugus County.[27] Here, committees of teachers were organized who met regularly and established desirable objectives. These were established only after repeated consultations with school nurses, health officers, private physicians, and others who could bring in authoritative advice on local health problems. Local morbidity and mortality rates were studied and explained by health officers and nurses. Local customs, prejudices, and habits were given careful consideration. The remedy for each of these problems was sought from the health experts. Then the committee started to devise ways of teaching the habits, attitudes, and conduct which would, in the opinion of the experts, provide the needed remedy. Programs were constructed and experimented with. Those successful were disseminated to other teachers.

A good example of this method is a project based on growth and nutrition in a country school. Several young chickens were donated. Pens were constructed, and feeding and weighing were done by the children. The chickens were divided into two groups, and the controls were given milk and cod liver oil as a part of their ration. At the end of a few weeks, one youngster, a confirmed coffee drinker, remarked that the milk-fed chickens were larger than the others. The milk-fed chickens weighed 13 per cent more than their brothers. The teacher believed the experiment was proving its worth.[28] The project included elements of biology, physiology, dietetics, arithmetic, craftsmanship, and others.

Turner has developed an excellent teaching unit of this kind on elementary bacteriology.[29] It requires no extensive laboratory apparatus. It introduces the child to the microscopic world in general, taking up pathogenic bacteria only after a proper background has been established. He says:

> If a child had never been outside a city, his first introduction to the plants of the open country should be to the flowers, trees, and grasses—not to poison ivy![30]

History can be taught as a record of man's striving for and achieving a better life. The study of civics is filled with health opportunities. Reading and art study offer a rich health field. The physician's examination, contact with the nurse, ventilation, lighting, handwashing facilities, and many commonplaces in the child's natural surroundings furnish excellent material for health teaching. Often, defects of the school plant are remedied when children call them to parents' attention.

4. *School Nurse Relationships* — Never before has the nurse been so important a factor in school health education. Heretofore, there was no clear understanding among all concerned as to what the nurse was to do.

Today, the well qualified school nurse makes herself more valuable by developing a closer relationship with the teacher, sharing information about the child, aiding a better understanding of the child through her contribution of professional knowledge and by a careful study of her well kept records. She is especially important in the health education of the parents, interpreting the teacher and the school physician to them.

No longer is the qualified school nurse remaining aloof from the educational program. She is becoming an actively functioning member of the faculty, developing the case study method of analyzing behavior, making intelligent use of community health resources by acting as a liaison between them and the school, contributing to curriculum construction and to methods and materials of instruction.[31] Without special training, she is more inclined to leave the actual teaching to teachers. Much of the modern program of integration and curriculum building in health depends upon the nurse.

5. *Attempts at Evaluation*—As in the general public health field, more scrutiny is being given to values and results. Publication of the *Pathway to Correction* by the American Child Health Association served to call attention to the fact that school health service had not accomplished its function by the mere detection of physical defects. Further studies are now under way to analyze and apply the results of this inquiry.

Better measures of health attitudes and health behavior are being sought.[32] One school health director believes that many physical defects, at least in the higher economic groups, would be found and corrected without the school examination and follow-up.[33] Wood cautions that these attempts at evaluation should not result in abandonment of old methods until we have a better substitute.[34]

6. *Improved School Environment*—When children are required by law to go to school, a serious responsibility falls upon the board of education for their health protection. Considerable advance has been made in proper seating, lighting, and ventilation. The roller towel and common drinking cup are rare sights today, even in 1 room rural schools. Handwashing facilities, however, are still inadequate in many places.

Distinct advances have been made in providing safe drinking water, rest periods, and a well conducted school lunch period.

Attention is now being given to overstimulation, both in the school and in the home; school report cards are being scrutinized as possible factors contributing to emotional strain; the 100 per cent attendance pressure is being viewed from the health standpoint.[35]

7. *Teacher Health*—This is gradually receiving the attention it deserves. Increased recognition of the effect of poor health upon the teacher's emotional state, and renewed attention to the communicability of tuberculosis have tended to make superintendents and school boards insist upon periodic physical examinations for teachers. Training schools are selecting future teachers with more regard to their mental and physical health.

8. *Consultation Services*—There has long been an urgent need for accessible consultation facilities where teachers could obtain sound advice and prompt assistance with their health problems. This need is reflected in the active correspondence of such agencies as the former American Child Health Association, the National Tuberculosis Association, the School Health Bureau of the Metropolitan Life Insurance Company. The latter receives nearly 50,000 letters a year from school administra-

tors and teachers. In the first 6 months of its existence, the School Health Education Service of the Joint Committee of the American Medical Association and the National Education Association received nearly 5,000 letters from school administrators and teachers.[36] The Federal Office of Education and various state departments of education, notably New York, are beginning to respond to this demand with encouraging results. They should eventually care for most, if not all, of the consultation services now provided by voluntary agencies.

9. *Tuberculosis Case Finding in Schools*—The campaign of the National Tuberculosis Association for tuberculin testing, follow-up, and X-ray of positives in schools has done much to stimulate the entire school health movement. Some schools and teachers have recently encountered modern school health for the first time through the activity of the local tuberculosis association. It should be remembered that a high percentage of tuberculin testing is not our ultimate goal. The real goal is to educate concerning health so that tuberculosis will be reduced. Tuberculin testing is an aid to achieving this real goal.

HEALTH EDUCATION OF PROFESSIONAL GROUPS

Progress in this third branch of the field of health education is better known to this group, and will not be detailed. Availability of federal funds for the training of public health personnel has brought about a new era so suddenly that we hardly appreciate its significance. Training of personnel is the best remedy to cure the old vicious circle. This circle comprises inadequate public health funds, incompetent public health personnel, lack of results, and lack of appreciation leading to still less adequate funds, and, perforce, less competent personnel. There are other points to attack this vicious circle, such as political reform and improved legislation. But none will be more likely to reverse the vicious into the benign circle than well trained, carefully selected, skillful, competent public health personnel.

In-service training of teachers, physicians, and nurses has developed rapidly in recent years. One of the most extensive programs of in-service training is the work of the Kellogg Foundation.[37]

CONCLUSIONS

It is evident that health education of the public, in the schools, and in professional groups, is receiving increased emphasis. This is shown by recent advances in this field along many fronts. The U. S. Public Health Service, American Medical Association, National Education Association, National Tuberculosis Association, motion picture industry, various foundations, and many schools and health agencies have made recent substantial progress. The American Public Health Association is contributing to this progress in practically all sections and in several committees. If we are to continue leadership in this field, we must give it even more attention, losing no opportunities to encourage research, assist members to avoid past mistakes, and facilitate interchange of experience in related fields. Especially unfortunate in the past has been the seclusion from each other of physicians and school administrators, teachers and nurses, public health officers and educators, and even school physicians and health officers. All have much in common in the field of health education, a field which promises to become at once the best defender and best champion of public health.

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A Critical Study of Various Types of Detergents and Disinfectants for Use in Dishwashing*

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IN 1919, Cumming and associates [1] showed that not only do dishes improperly washed and sterilized carry many bacteria, but may act as conveyors of disease. In 1934, Mallmann and Devereux [2] showed that glasses in beer establishments and soda fountains when improperly sterilized carry large numbers of bacteria. Lyon [3] in coöperation with the writer showed that approximately 20 per cent of the unwashed glasses in one beer saloon carried spirochetes on the rims. It is difficult to evaluate the extent to which improperly cleaned and sterilized glassware and silverware may transmit disease, but it is certain that clean sterile glassware and silverware do not.

To determine the care used in preparing eating utensils, a survey was made in 1935 [4] with the aid of the Lansing Department of Health. Twenty-two restaurants were selected at random and without warning, swab samples were taken of both glassware and silverware, using a method of collection described later in this paper, in each restaurant. After making the survey of conditions as represented by the restaurants examined, an educational program was instituted on methods of obtaining clean sanitary utensils. Six weeks later without notification, the same restaurants were again visited and bacteriological examinations made. The results of these two surveys are presented in Table I.

The first survey shows how ineffectively eating utensils are cleaned and sanitized where regulations concerning sanitization * are not rigidly enforced. Surveys made by the writer in other cities show similar conditions. The second survey shows how effectively sanitization can be attained where restaurant owners are taught how to sanitize their utensils.

To aid the restaurant owners and sanitary enforcement officer in selecting the best method of cleaning and sanitizing eating utensils, a study of detergents and sanitizing agents was made. The data represent a preliminary report of this study.

* Read at a Joint Session of the Laboratory, Food and Nutrition, and Public Health Engineering Sections of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

* The word "sanitization" is used for want of a better term to describe the process of rendering eating utensils free from disease bacteria and other organisms indicative of insanitary conditions. The use of the word "sterilization" is incorrectly used when applied to eating utensils, because complete freedom of microscopic life is seldom attained and from a public health point certainly is unnecessary.

TABLE I

Survey of 22 Restaurants for Quality of Dishwashing

Restaurant	Averaged Bacteria Counts of Tableware and Dishes		Restaurant	Averaged Bacteria Counts of Tableware and Dishes	
	Before Campaign	After Campaign		Before Campaign	After Campaign
A	66,700	21	L	87,000	145
B	67,000	14	M	63,000	7
C	100,000	45	N	60,000	27
D	33,000	36	O	52,000	16
E	25,000	7	P	100,000	..
F	24	44	Q	34	35,000
G	37,000	10	R	8	56
H	17,000	..	S	378	6
I	3,000	1	T	2,300	1
J	100,000	..	U	20,000	3
K	8,000	7	V	100,000	3

DETERGENTS

The function of a detergent is to remove foreign materials from glassware and silverware without injury to the utensils or to the dishwashing equipment and the operators. The most frequently used detergents on the market for mechanical dishwashing contain one or more of the following ingredients: trisodium phosphate, sodium metasilicate, sodium carbonate, sodium hydroxide, and sodium hexametaphosphate.

Baker [5] in 1931 showed the merits of sodium metasilicate over trisodium phosphate, sodium hydroxide, and sodium carbonate detergents when each was tested separately. Schwartz and Gilmore [6] showed that the addition of sodium hexametaphosphate to dishwashing detergents prevents film formation, gives full value to detergent action, and yields results in respect to brightness and freedom from film superior to cleaners lacking this compound. They recommend a mixture consisting of 40 per cent sodium hexametaphosphate, 15 per cent trisodium phosphate, monohydrate, 40 per cent sodium metasilicate pentahydrate, and 5 per cent sodium hydroxide.

A good detergent is not only valuable for removing organic matter and film formation, but it should aid in the removal of microörganisms. Hall [7] compared trisodium phosphate with the mixture recommended by Schwartz and Gilmore in removing bacteria from dishes experimentally smeared with milk. The results are presented in Table II.

TABLE II

A Comparison of Schwartz and Gilmore Mixture and Trisodium Phosphate in Removing of Bacteria from Petri Dishes

Method of Cleaning	No. of Organisms Remaining on Dish
Water-control	300
Trisodium Phosphate	75
Schwartz and Gilmore Mixture	9

It will be observed that there were fewer bacteria remaining on the Petri dishes washed with the Schwartz and Gilmore mixture than with the dishes washed with trisodium phosphate.

Hall also tested the mixture recommended by Schwartz and Gilmore and a dishwashing compound, composed mostly of trisodium phosphate, in a

mechanical dishwasher under field conditions in two restaurants. The results are presented in Table III.

TABLE III

The Removal of Bacteria from Plates in Dishwashing Machine by Schwartz and Gilmore Mixture and Trisodium Phosphate

Restaurant	No. of Plates Tested	No. of Remaining Bacteria: Trisodium Phosphate	No. of Remaining Bacteria: Schwartz and Gilmore Mixture
A	270	19	8
B	333	7	1

The data show that in an examination of 603 dishes, the Schwartz and Gilmore mixture removed more bacteria than did trisodium phosphate. The writer in checking the removal of bacteria from glassware by detergents has obtained similar results.

GERMICIDAL PROPERTIES OF DETERGENTS

As the Schwartz and Gilmore mixture removed more bacteria than trisodium phosphate, a test of the germicidal properties of these compounds was made to determine whether the disappearance of the bacteria was due to destruction or loosening from the glassware by better detergent action. The technic used was the quantitative method of Mallmann and Devereux.[2] The detergents were examined at temperatures of 22°, 30°, 40°, 50°, 60°, and 70° C. The time intervals of exposure were 15, 30, 45, 60, 90, 120, and 180 seconds. A 24 hour culture of *Staphylococcus aureus* was used as test organism in all of the experiments. Although a number of detergents were tested only 3 will be presented: trisodium phosphate, sodium metasilicate, and the Schwartz and Gilmore mixture. All were tested in 1 per cent concentrations. The data for temperatures of 40, 50 and 60° C. for trisodium phosphate, sodium metasilicate, and Schwartz and Gilmore mixture are given in Tables IV, V, VI respectively.

All 3 detergents exhibited about the same amount of germicidal action. At 50° C. slight germicidal properties were demonstrated, but at 60° C. marked germicidal properties were evident. In 1 minute exposure, all *Staphylococcus aureus* organisms were killed, whereas a temperature of 60° C. in water alone required 3 minutes for sterilization. No difference could be detected among these 3 detergents, so the reduction in bac-

TABLE IV

The Germicidal Action of a 1 Per Cent Trisodium Phosphate at Various Temperatures, Using Staph. Aureus as a Test Organism

Temperature	Test Substance	Number of Surviving Bacteria at Various Periods of Exposure in Seconds: 15	30	45	60	90	120	180
40° C.	Trisodium Phosphate	43,000	31,000	63,000	63,000	44,000	50,000	52,000
	Control	38,000	40,000	38,000	42,000	40,000	39,000	41,000
50° C.	Trisodium Phosphate	11,000	14,000	19,000	20,000	18,000	15,000	2,000
	Control	41,000	37,000	57,000	40,000	33,000	31,000	33,000
60° C.	Trisodium Phosphate	3,000	50	0	0	0	0	0
	Control	18,000	11,000	2,400	2,000	1,600	10	0

TABLE V

The Germicidal Action of a 1 Per Cent Sodium Metasilicate at Various Temperatures, Using Staph. Aureus as a Test Organism

Temperature	Test Substance	Number of Surviving Bacteria at Various Periods of Exposure in Seconds						
		15	30	45	60	90	120	180
40° C.	Sodium Metasilicate	172,000	172,000	180,000	175,000	170,000	159,000	132,000
	Control	152,000	142,000	149,000	144,000	158,000	146,000	141,000
50° C.	Sodium Metasilicate	158,000	120,000	127,000	105,000	73,000	8,100	50
	Control	146,000	154,000	127,000	138,000	133,000	120,000	109,000
60° C.	Sodium Metasilicate	60,000	3,000	80	100	0	0	0
	Control	105,000	112,000	58,000	7,000	920	260	0

teria from dishes is not due to any added germicidal property of the Schwartz and Gilmore mixture.

The data of Hall and experiments by the writer indicate that the addition of sodium hexametaphosphate to a detergent mixture produces a preparation that cleans better as shown by the more effective removal of bacteria.

STERILIZING AGENTS

After dishes and silverware have been properly cleaned, they should be sanitized to render them free of all bacteria and other microörganisms. Two methods of sanitization or disinfection are in common use, hot water sterilization and chemical disinfection. The most common method for restaurant eating utensils is hot water, which is always used in mechanical dishwashers.

To check the efficiency of this method, a series of tests was made on dishwashers in use routinely in several restaurants and boarding clubs. The machines tested are operated at a temperature of not less than 145° F. in the washing compartment and not less than 170° F. in the rinsing chamber. The cleaner used was a detergent con-

TABLE VI

The Germicidal Action of a 1 Per Cent Schwartz and Gilmore Mixture at Various Temperatures, Using Staph. Aureus as a Test Organism

Temperature	Test Substance	Number of Surviving Bacteria at Various Periods of Exposure in Seconds						
		15	30	45	60	90	120	180
40° C.	S. & G. Mixture	111,000	112,000	85,000	97,000	95,000	95,000	91,000
	Control	90,000	100,000	98,000	95,000	101,000	101,000	99,000
50° C.	S. & G. Mixture	88,000	84,000	70,000	47,000	17,000	13,000	6,400
	Control	45,000	38,000	39,000	25,000	27,000	18,000	8,700
60° C.	S. & G. Mixture	54,000	9,000	170	0	0	0	0
	Control	104,000	81,000	25,000	16,000	2,000	300	0

sisting mostly of trisodium phosphate. Samples were collected daily for 13 days. Forks, knives, spoons, glasses, cups, sidedishes, and saucers were generally checked, but in some instances other dishes were also examined. Cotton swabs were placed in 10 ml. of sterile salt solution. Before swabbing, the excess water was removed from the swab by pressing against the tube. Saucers and sidedishes were tested by swabbing an area of 1½" square. Cups and glasses were checked by swabbing the rims of the utensil on the inside and outside. Forks, knives and spoons were checked by swabbing the tines, blade, and bowls respectively on both sides. After shaking the swab in the rinse water, 1 ml. portions were plated on plain nutrient agar and incubated at 37° C. for 48 hours. This technic is similar to that used routinely in this laboratory for checking restaurants, soda fountains, and beer gardens, except that the swabs supplied to the inspectors are dampened with 0.25 ml. of salt solution instead of 10 ml. The larger amount of salt solution on the swab at the time of sampling was selected merely to lessen the laboratory work.

Utensils from 4 college operated boarding clubs were examined. These were selected because of close supervision by a representative of the Department of Home Economics who is in charge. It was felt that the results obtained from these dishwashers would represent the ideal as far as attainable results were concerned. The data obtained are presented in Table VII. As shown, the average bacteria count per unit utensil was 16, 9, 21, and 11 bacteria respectively for Mary Mayo Hall, Wells Hall, Woman's Building, and the Union Cafeteria.

A large privately owned restaurant was also checked. This is very carefully supervised and represents, as far as care is concerned, an ideal in handling of dishes. The method of handling the dishes and silverware is the same as found in any restaurant using a mechanical dishwasher. The results are presented in Table VIII. It will be observed that the average count for all units is 17 bacteria; also, that the medium count is extremely low.

Most of the colonies found on the dishes and silverware represented spore-bearing bacteria which are quite resistant to heat. The presence of these organisms, particularly in such small numbers, is of no sanitary significance. On the basis of these data, it appears that hot water at a temperature of 170° F. is sufficient to effect satisfactory sanitization of all restaurant dishes and silverware. I believe that a utensil with a bacterial count less than 100 colonies is a dish that has been properly washed and sanitized. The production of absolute sterilization is impractical and unnecessary.

I do not believe that chemical treatment should be recommended where hot water is available, or that chemicals

TABLE VII

An Averaged Bacterial Count of 8 Different Eating Utensils in 4 College-Operated Boarding Clubs, Using Hot Water Sanitization

	Bacterial Counts							
	Fork	*Knife*	*Spoon*	*Glass*	*Cup*	*Sidedish*	*Saucer*	*Total Average*
Mary Mayo Hall	20	80	0	0	10	10	10	16
Wells Hall	0	0	0	0	10	50	0	9
Woman's Bldg.	20	0	110	40	0	0	0	21
Union Cafeteria	20	30	0	0	20	0	10	11

TABLE VIII

Bacterial Counts of 13 Eating Utensils, in a Large Restaurant, Using Machine Washing with Hot Water Sanitization

	Bacterial Count			
Utensil	*Low*	*High*	*Medium*	*Average*
Water glass	0	1,080	10	18
Cup	0	200	0	22
Saucer	0	90	20	27
Plate	0	90	0	11
Salad dish	0	5,000	20	31
Soup bowl	0	350	30	18
Side dish	0	1,280	10	26
Cocktail glass	0	10	0	5
Cream pitcher	0	0	0	0
Fork	0	60	0	14
Knife	0	3,100	0	27
Teaspoon	10	160	10	20
Soup spoon	0	20	0	20
Grand average				17

should supplement the hot water processes in any way. If the operator knows that chemicals capable of killing are in his washing compounds, he is very apt to depend upon the chemicals rather than heat. Unless the dosage of the preparation is right, unsatisfactory results are apt to occur. Heat properly applied is effective and there is no need of a supplementary disinfectant. Where hot water is unavailable, as frequently occurs in beverage dispensing establishments, chemical disinfection is necessary. For such a place chemical disinfection should be used, although hot water should be recommended and the proprietors should be urged to arrange for the hot water process as the ideal method.

The only practical chemical disinfectants that have come to my attention have been the chlorine compounds, particularly those containing hypochlorites (Devereux and Mallmann). Chloramine T and azochloramid preparations are satisfactory, providing a sufficient exposure is used.

All chemical disinfectants used for glass should be easily checked by a simple test for concentration by sanitary inspectors; otherwise the operators are very apt to use too little for satisfactory results. I found that, unfortunately, a chemical test alone for concentration of the disinfectant is not sufficient. Frequently, the attendants will by-pass the disinfectant solution to avoid the odor of the compound on the glasses. To insure proper sanitization it is necessary to check the glasses bacteriologically through swab examinations. In Lansing and East Lansing, we are doing this routinely and have found it very satisfactory and easily conducted.

CONCLUSION

1. Certain detergents remove bacteria more efficiently from glassware than others. The addition of sodium hexametaphosphate to detergent mixtures, aids in the removal of bacteria.

2. Hot water under practical routine conditions provides satisfactory destruction of bacteria on dishes and silverware. It is recommended that wash waters be maintained at a temperature of at least 140° F. and rinse waters at a temperature of not less than 170° F.

Chemical disinfection should be rec-

ommended only when hot water is not available.

For cold water disinfection, only chlorine sterilizers should be used, or comparable compounds that can be readily checked by simple chemical tests.

All glassware and silverware should be checked routinely by bacteriological examinations.

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Full-Time County Health Units in Maryland

MARYLAND, according to Dr. R. H. Riley, Director of the State Department of Health, has the distinction of being the first state in the Union to have established a full-time health unit in all counties with the financial support of the local community before Social Security or other federal funds were available.

When the State Department of Health was organized in 1874, cities and counties were functioning independently. A significant advance was made in 1914 when the State Legislature authorized the creation of 10 sanitary districts. The districts consisted at first of two or three counties, each in charge of a full-time deputy state health officer.

As early as 1915 the activities and responsibilities had so increased that full-time health service for each county became not only desirable, but necessary.

In 1922 the first full-time county health department was established in Allegany County. By 1928, 9 counties had accepted the county unit plan. By Act of Legislature in 1931, the state was divided into 23 sanitary districts, each county forming a district. During 1933 Caroline County accepted the full-time county health unit plan, giving Maryland the distinction of having a full-time health unit with trained personnel in every county of the state, thereby in the space of 12 years accomplishing what at first seemed an impossible task.

Intestinal Parasite Survey in Alabama

I. A Comparative Study of Two Hookworm Anthelmintics*

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DURING the past 2 years a hookworm survey has been in progress in Alabama. The majority of school children in 36 of the 67 counties in the state have been examined, while the other 31 counties will have completed their surveys during the 1936–1937 scholastic year. This paper is the first of a series concerning intestinal parasites in Alabama.

For more than 10 years the Alabama State Department of Health has used the combination drug carbon tetrachloride-oil of chenopodium, in proportions of 2 to 1, in the treatment of hookworm infestation and disease. The introduction and widespread employment of tetrachlorethylene as an anthelmintic in the treatment of hookworm infestation, instigated a comparative study of these two drugs. This investigation was designed primarily to substantiate the continued use of carbon tetrachloride-oil of chenopodium compound as the drug of choice, or the substitution of tetrachlorethylene as the official anthelmintic to be recommended by the Department of Health.

HISTORICAL

Hall [1] (1926) states "anthelmintic medication underwent a very slow evolution up to less than a half century ago, at which time there was a rather rapid acceleration in the way of developments, and events during the past 10 years indicate that we are now entering a third stage in the development of this subject. The first stage covers centuries of uncritical empiricism; the second stage covers less than a half century of increasingly critical empiricism; and the third stage covers a decade of critical experimental investigation." The literature indicates that male fern, which was known to the Greeks, is the oldest anthelmintic.

Thymol was proposed in 1881 and proved superior to male fern in hookworm disease. At the same time oil of chenopodium was introduced in Europe but did not gain full recognition until 1913. Hall [2] (1921) introduced carbon tetrachloride in canine hookworm disease. Leach and his associates [3, 4] (1922, 1923) in two reports showed its value for human treatment.

Smillie and Pessoa [5] (1922) were the first to use a combination of carbon tetrachloride and ascaridol, which is the active principle of oil of chenopodium.

* Read before the Laboratory Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

They claimed that carbon tetrachloride was more effective against female hookworm, and ascaridol better for male hookworm. Hall and Shillinger [6] (1925) introduced tetrachlorethylene and found it to be as effective as carbon tetrachloride and about as safe.

EXPERIMENTAL

(a) Methods—Field—It was decided to work in certain southern rather than northern counties in order to have an adequate and comprehensive sample. The hookworm survey of Havens and Castles [7] (1930) showed that more children were infested and heavier infestations were encountered in the southern counties than in the northern ones. School children were selected as the group most easily accessible and and offering the best possibility of securing a sufficiently adequate sample from which to draw conclusions. In the beginning every tenth positive specimen for hookworm had an egg count in order to determine the average worm burden per child. Later an egg count was made on every positive specimen when enough material was submitted. The two drugs were alternated with the children showing positive specimens, and this alternation was continuous from school to school and county to county. A recheck fecal specimen was submitted 10 days to 2 weeks after treatment in most incidences; 5 weeks was set as the maximum time for submission of rechecks in order to avoid error from reinfestation.

The dosage was as follows:

Carbon tetrachloride (2 parts)—Oil of Chenopodium (1 part): 3 min. per year of age with 30 min. as the maximum dose.

Tetrachlorethylene: 0.2 c.c. per year of age with 3.0 c.c. as the maximum dose.

The drugs were obtained from the manufacturers in gelatin capsules. The treatment for each child was put up in a separate envelope in the central office, and distributed through the county health officer for home administration. No rechecks were made unless it had been ascertained that the child had taken the treatment.

(b) Methods — Laboratory — All specimens were examined for intestinal parasites by the salt flotation method in the various laboratories belonging to the state system. At the beginning of the study every tenth positive specimen was sent to the Central Laboratory in Montgomery, where egg counts were made. Subsequently, because so many positive specimens had insufficient amount of feces, all positive samples were examined whenever possible. The same two technicians performed all egg counts. The Caldwell technic was used rather than the Stoll. This method was described by Caldwell and Caldwell [8] (1926) and has been used in these laboratories since its inception.

(c) Presentation of Data—The 6 counties shown on Map I are those included in this study. The percentage

MAP I

TABLE I

Hookworm Incidence by Age, Sex and Race in the Area Surveyed

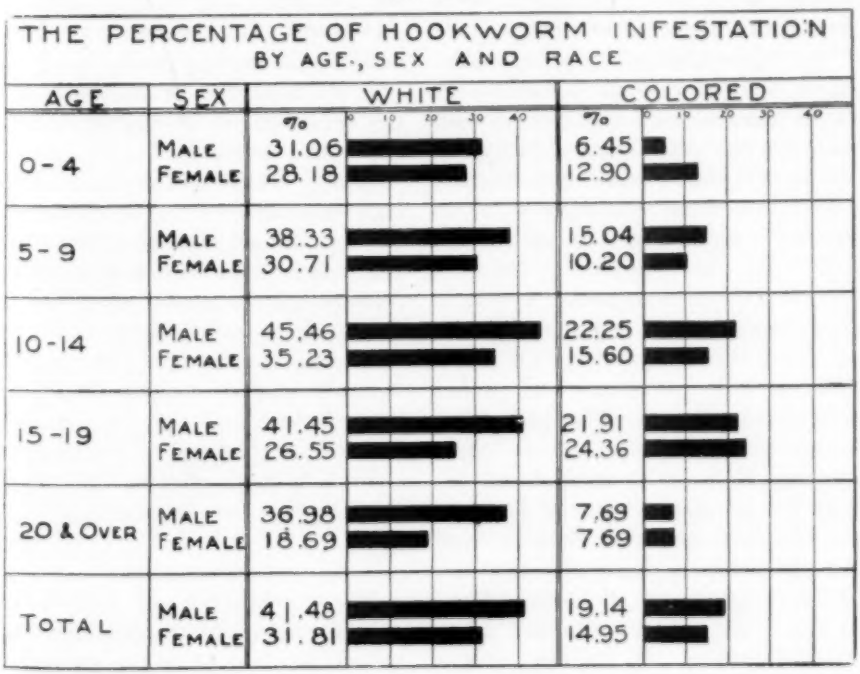
	White				Colored			
	Male		Female		Male		Female	
Age	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
0- 4	41	91	31	79	2	29	4	27
5- 9	836	1,345	691	1,559	85	480	59	519
10-14	1,109	1,330	894	1,643	142	496	127	687
15-19	286	409	167	462	39	139	48	149
20 and over	27	46	23	100	1	12	3	36
Age not stated	9	35	6	41	9	18	10	9
Grand Total	2,308	3,256	1,812	3,884	278	1,174	251	1,427

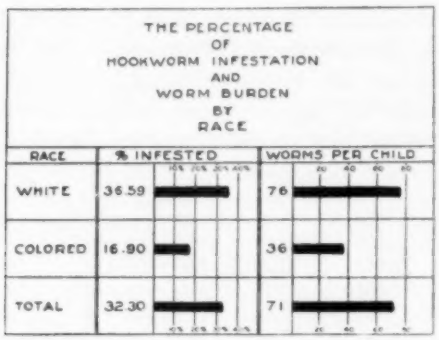
of infestation is shown for each county. It will be noted that those south of Montgomery have a higher percentage of infestation than Montgomery and the 2 northern counties.

Table I and Chart I show the number with percentage, of infestation by race, sex, and age. In the white group it is apparent that there is higher infestation in males for all age groups, and the age groups 10–19 are the ones most heavily involved. The infestation rate among the colored is much lower, with the incidence in the colored female heavier than in the male in the age group 15–19.

Chart II shows the infestation rate for all ages and both sexes by race with the average worm burden. The infestation, as is expected, in the colored is less

CHART I





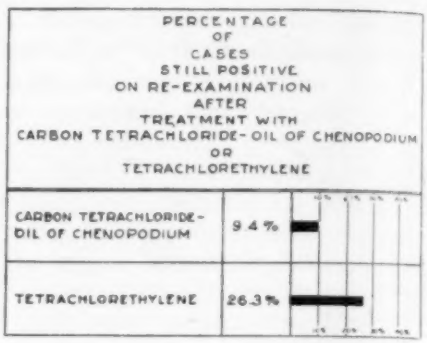

PERCENTAGE OF CASES STILL POSITIVE ON RE-EXAMINATION AFTER TREATMENT WITH CARBON TETRACHLORIDE-OIL OF CHENOPODIUM OR TETRACHLORETHYLENE
CARBON TETRACHLORIDE-OIL OF CHENOPODIUM
9.4%
TETRACHLORETHYLENE
26.3%

TABLE II

The Results of Reëxamination of Positive Cases Following Carbon Tetrachloride–Oil of Chenopodium or Tetrachlorethylene Treatment

Carbon Tetrachloride–Oil of Chenopodium			*Tetrachlorethylene*		
No. Pos.	*No. Neg.*	*Per Cent Pos.*	*No. Pos.*	*No. Neg.*	*Per Cent Pos.*
82	786	9.4	243	680	26.3

than one-half that of the white group. Similarly, the average worm burden is smaller.

Table II and Chart III show the number and percentage of children on reëxamination, after treatment with carbon tetrachloride-oil of chenopodium and tetrachlorethylene, who remained positive for hookworm. There were about 3 times as many children showing hookworm ova after tetrachlorethylene as there were after carbon tetrachloride-oil of chenopodium treatment. This is statistically significant.

DISCUSSION

There were 14,622 specimens examined from the 6 counties. Of these 4,728, or 32.3 per cent, were found positive for hookworm. The Rockefeller Sanitary Commission [9] (1914) after surveying 30 counties in Alabama reported an infestation rate of 53.6 per cent. Recheck specimens were received from 868 children who had taken carbon tetrachloride-oil of chenopodium, and from 923 children who had taken tetrachlorethylene. Of the 868 children taking carbon tetrachloride-oil of chenopodium 82 remained positive, whereas 243 of the 923 children taking tetrachlorethylene still showed hookworm ova. This differentiation in favor of the combined treatment is statistically significant. The number of positive rechecks having egg counts was so small that a comparison of the two drugs in the reduction of the degree of infestation was impossible.

Soper [10] (1926) working in Paraguay reports as follows: "Comparative results presented for tetrachlorethylene and carbon tetrachloride given in equal doses and under similar conditions show that carbon tetrachloride alone or in combination with oil of chenopodium is more efficient for *Necator* than is tetrachlorethylene and that in combination with oil of chenopodium, carbon tetrachloride is more efficient than is tetrachlorethylene for *Ancylostoma*"

CONCLUSIONS

The combination of carbon tetrachloride and oil of chenopodium (in the proportion 2 to 1) in the dosages used

in this experiment proved more efficacious than tetrachlorethylene in the treatment of hookworm infestation.

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Is the Trailer a Health Menace?

HIGHWAY safety, sanitation and other problems growing out of the increasing use of house trailers held the spotlight throughout the 2 day meeting of the Second Regional Conference on Highway Safety held recently in New York City.

Legislators and administrative officers of 8 states, together with representatives of several national agencies, attended the conference which was called by the New York Joint Legislative Committee on Interstate Coöperation in conjunction with the Council of state governments to determine the need if any for regulatory legislation with respect to house trailers. The states represented were Delaware, New Jersey, New York, Pennsylvania, Connecticut, Massachusetts, Vermont and Ohio.

Discussion during the conference led to the conclusion that at present there is a lack of basic information on which to draft legislation. It was agreed that the several states be requested to withhold regulatory legislation pending development of a uniform measure and that a study be made of the various phases of the problem, including sanitation. A committee was appointed to make the proposed study and to report at the meeting of the Regional Conference next year.—*Health News*, State Dept. of Health, Albany, N. Y., Mar. 29, 1937.

Appraising the Educational Content of a Health Service Program*

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THE White House Conference *Report on the School Health Program,* enunciates a number of fundamental guiding policies. Many of these have had their influence on the school health programs of the country. The subject of this paper is prompted by the acceptance of one of these principles, which is: "The health program of the schools should be definitely and fundamentally educational in nature and scope."

In using the term "health service program" we are including the following activities: (1) There are the medical and dental examination programs with the subsequent follow-up of cases with physical defects; (2) those activities which are carried on for the purpose of preventing the spread of communicable diseases; (3) the first aid and emergency treatments; (4) the special advisory functions of the doctor and nurse relative to adjustments in the school routine to benefit children with certain physical handicaps, such as cardiac disorders, hearing and vision defects.

What are the educational values one might expect from a health service program? We must know these before proceeding to any appraisal. Biologically defined, education is a change in the organism resulting from activity. From this standpoint the health service program has an educational influence on all of those who participate in it. There are changes not only in the child but in all others concerned—the parent, the teacher, the nurse, the principal, the physician, the dentist and the dental hygienist. Changes that take place may be desirable or undesirable. Are any of our programs conducted in such a way that the educational values, such as favorable attitudes and proper health habits, results? or are we merely paying lip service to an ideal, and possibly developing unfavorable attitudes toward medical service and advice? The answer to these questions rests on a critical evaluation of our procedures.

The first essential in evaluating a program is to define its objectives specifically. Unless we know exactly what we are trying to achieve, measurement is impossible. Values must be measured in terms of the degree to which specific objectives are attained.

Some of the desired educational values for the child are:

* Read at a Joint Session of the Public Health Education and the Child Hygiene Sections of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

1. A favorable attitude toward professional medical and dental care.
2. An appreciation of the value and importance of early medical advice and the dangers of self-medication and over-the-counter drug store prescribing.
3. Information concerning the transmission of communicable diseases, methods of protection, and proper health behaviors relative to their control.
4. The development of good health habits. The advice received from professional personnel at the time of the examination should be a potent influence toward improving the health behaviors of the child.
5. A respect for the achievements of medical science and an appreciation of the work that is continually being attempted in connection with the control of disease.

Not only does the school health program have a responsibility to the child, but if it is to achieve one of its main functions, namely, the amelioration of handicaps among the children served, then it must educate the parents in a number of important ways. These are:

1. It should produce a better understanding of the child not only with respect to his physical needs, but also his mental and social needs. Either at the time of the examination or in the course of the follow-up the specific needs of the child should be made clear to the parent.
2. It should inform parents concerning the medical facilities of the community and how they can best be used. It should also teach both parents and children how to appraise the various types of so-called medical facilities, or, in other words, how to separate the quacks from reputable and acceptable facilities. Too often, the program concentrates on the attainment of only one of the desirable results—the correction of a defect—and ignores the concomitant bad result that accrues from the way in which the attempt at correction is made. The purchase of glasses from the 10 cent store is sometimes considered a correction by the parent.
3. It should develop among parents a favorable attitude toward the school, so that they will think of it as a place where they can go for friendly advice concerning their child instead of waiting for the school to come to them.
4. From the program, parents should develop a favorable attitude toward all preventive measures, such as, immunizations and vaccinations, early care of colds, etc. The emphasis upon perfect attendance has done much in a negative and undesirable health educational way. There are times when children ought to be absent.

Since the teacher is a participant in the school health program, we may also expect her to reap certain educational values. These are:

1. A better understanding of the handicaps of children in general and of her children in particular. If the teacher assumes certain responsibilities for screening out children who should be seen by physicians as early as possible and, if she is present at the examination of those children, then she feels that she has a responsibility for the health of the children in her room. On the other hand, if the medical service is conducted without the teacher, she learns that some one else has the responsibility for the health of the children and that it is not her function.
2. An improved knowledge of the meaning of certain physical symptoms and behaviors which she may observe in her children.
3. A more thorough understanding of the home conditions of the children whose homes are visited by any of the school health personnel. How many school nurses report back to the teacher on the home environment of a child she has visited so that proper curriculum and other adjustments can be made?
4. A knowledge of how to utilize the services of the other members of the school health staff in understanding her own children. In a properly coördinated program the teacher should learn when to rely on her own judgement and when to call upon the physician or nurse and how to utilize their time to the best advantage.

During the nurse's participation in the program certain educational values should also accrue to her. One of these should be an appreciation of the fact that children are more than objects with physical defects that must be corrected, and that her job is a teaching job with the parent, more than a coercive job of getting children under medical care. To this end the nurse must learn the scholastic and social problems of the child as well as his physical condition. As a second educational value the nurse

should learn that she is a part of the total situation and that the work that she does and the records that she keeps are merely a means to an end, rather than an end in themselves.

In a properly functioning school health program, the principal also is a participant and as a result of his participation there are certain educational outcomes that should be expected. First of all, he should gain an appreciation of the need for administrative adjustment for children with specific handicaps. The principal should also learn the limitations of a school medical examination. It is impossible under the present organization of the school medical service to give periodic health examinations to all of the children. School medical examinations cannot be as accurate as we would hope because the previous history of the child is seldom available. Therefore, we cannot expect the physician to give the type of medical service that might be expected from a private physician with his own patients. These limitations should be recognized by the principals in order that demands will not be made upon school physicians to do the impossible.

These are some of the many educational outcomes that may be expected from a well rounded program of school health service. How can we evaluate the extent to which these outcomes have been attained? In the past, expert opinion has frequently been used in the evaluation of various public health programs. By this method an individual, or a group of individuals, studies the program, its objectives, the administrative organization, and the activities carried on. From this study the experts state in more or less qualitative terms their opinions concerning the effectiveness of the program in achieving its objectives. There are several dangers in this method of evaluation. First, the estimate of the success of the program depends upon the expert or experts who make the evaluation. If a physician evaluates the problem, his judgments will be largely based upon the adequacy of the examination, the length of time that it takes to make it, and the relative number of children so examined. It is probable that he will give less attention to the follow-up and educational activities in the program. If, on the other hand, the evaluation is made by a health education expert, much more emphasis will be placed upon the educational content of the curriculum and the extent to which the examination is used as a teaching experience.

Realizing these dangers inherent in evaluation by expert opinion, those who critically study public health procedure have turned to appraisal forms and rating scales as methods of overcoming some of the bias likely to result from expert opinion. Such appraisal forms consist of a number of items that experts agree should be present in a good health program. Specific numerical values are granted for the presence of each of the items in the appraisal form, and the evaluation is made by summing up the scores for each of the items carried on in the program. This largely eliminates the failure to obtain a comprehensive picture of a school health program. It likewise eliminates the errors that arise because of the difference in emphasis which various experts attach to particular activities. It does not, however, remove the difference in standard in the observaton. For example, items in an appraisal form, such as "Provision for integration of health topics with other subjects of the curriculum," or "Satisfactory evidence of special adjustment of school régime to meet needs of children with heart defects," are specific items; but the decision as to whether the adjust-

ment of the school régime is satisfactory or whether the integration of health topics into the curriculum is provided for, will depend upon the standard used by the evaluator to judge satisfactoriness and integration. The personal equation still is a factor.

Furthermore, these appraisal forms focus their emphasis upon administrative practices rather than upon results. A school that is following all of the prescribed procedures would be evaluated as having a very acceptable program even though many of the objectives listed are not being obtained. Despite these limitations, appraisal forms have been very useful. They have called attention to many of the lacks in school programs, and this has frequently led to improvements.

An adequate evaluation depends on the measurement of the actual results obtained. Do children who have been under a given health service follow preventive measures? Do they realize the values of early medical advice and the dangers of self medication? Do they go to a dentist regularly? Answers to such questions should be the essence of a proper evaluation.

However, it is not easy to obtain answers. To do so requires measurement of knowledge, attitudes and behavior of children, of parents, of teachers, of nurses, of physicians and of principals. Only a few of the measurements needed to provide answers to these questions have been devised. Their construction is a long, careful research problem in itself. Therefore, we cannot be expected to describe comprehensive measurements suitable for evaluating present health service programs. All we can now do is to outline the criteria for such measurements.

First, the measurements must be objective. They must be so constituted that the results obtained by one evaluator will be the same as those by any other evaluator in the same situation. If this condition is not met by the measurements, the results obtained are indicative of the person who made the evaluation, and not of the program. Evaluations based on individual subjective judgments are especially faulty when judged by this criterion.

Second, the test items must be indicative of the total objective rather than a measurement only of the particular items included. Suppose we were measuring the extent to which the program had produced in the children favorable attitudes toward health behaviors. It would, of course, be impossible to measure the children's attitudes toward every possible health behavior. Therefore the materials chosen for measuring children's attitudes must be so selected that they represent more than just the particular items included. In other words, if another section of the materials were used the same distinctions in the children's attitudes would be obtained. Those in the public health field have been too prone to place significance on the answers to individual questions. The psychologists ask a group of questions bearing on the point at issue and judge the mass effect of the replies. We must become accustomed to using questions and answers as indices and not for their individual significance. Answers vary too much with the way questions are asked. We must get at the truth by indirect rather than by direct approaches.

Third, the measurements used must be truly indicative of the degree to which the objectives have been achieved. Satisfying this criterion is particularly difficult as many of the most important educational values of the health service program do not exhibit themselves until later in life. For example, one of the most important outcomes should be an appreciation of medical supervision and a tendency to seek medical advice on

health problems. Direct measurement of the attainment of that objective cannot be made until several years after the child has been exposed to the program. Therefore, any immediate evaluation of attainment must be by indirect measurement of a child's behavior under artificial situations; but this indirect measurement must first be shown to be indicative of the actual subsequent behavior of the child—otherwise the evaluation is not valid.

The health service program can be definitely and fundamentally educational. We may think that the direct, immediate and only outcome of an examination is the correction of defects. Occasionally it may be, but in many instances the specific physical condition disclosed in an examination is relatively minor. It is merely a practical demonstration of a desirable procedure. The school medical service cannot be at a child's beck and call every minute. The service must teach something. If it does not teach something that the child can use later, it is merely palliative, and little progress is to be expected.

We are not getting all the educational value possible out of the health service program. We are too impatient; our objective is too limited; our eyes are too narrowly focused on the defect. We do not want to slow up the examination to talk to children or to parents. It cuts into our number of examinations. This is a mistake. We must raise our eyes to the long-time educational outcomes of the health service experience. The tooth that we repair today is just one little experience. The school cannot accept the responsibility for all future repair work. The aim should be to get the child and the family to accept the responsibility in the future for their own good and of their own volition.

Once the educational values are utilized in the school health program, then evaluation is worth while to guide procedures. Accurate appraisal is a slow, painful process but it is worth the effort. We must seek the aid of experts in psychological measurement to do the pioneering research in the construction of measuring instruments. Practical evaluation procedures must await these preliminaries.

Uses of the Life Table in Vital Statistics*

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FOR the benefit of those readers who may not be acquainted with the detailed structure of the life table, a brief description of its principal columns will first be given, using, by way of illustration the life table for white males in the United States in 1934, as computed in the Statistical Bureau of the Metropolitan Life Insurance Company. This table is reproduced as Table I.

Column 1 of this table gives the age of life from birth to age 104. The second column shows the survivors to each age of life out of 100,000, starting out at birth (age 0), and diminishing from age to age in accordance with the mortality of 1934. The figures in this column are generally denoted by the symbol l_x. The third column indicates the corresponding deaths in each year of life, the figures in this column, usually denoted by d_x, being simply the differences between two adjacent figures in the second column. The fourth column gives the death rate in each year of life, or, to be more exact, the probability at a given age of dying within 1 year, this being denoted by the symbol q_x. So, for example, the death rate at age 10 is obtained by dividing the deaths in this year of life, namely 123, by the number of persons entering this age, namely 91,625. This quotient, expressed in parts of a thousand, is 1.34.

The fifth and sixth columns are auxiliary columns employed in computing the seventh column, which gives the expectation of life at each year of age. The fifth column gives the average number of persons living in each year of life; for instance, in the first line opposite age 0, we find 97,090 which is the average of 100,000 and 94,179. The figures in this column may also be interpreted as the number of years of life lived within a given age of life; so, for instance, the figure 97,090 is the number of years lived by the survivors of the original 100,000 in passing through the first year of their life.

Column 6 is obtained by cumulating the figures in column 5 beginning at the end; for example, the figure 31 in column 6 opposite age 100 is the sum of 2+4+8+17, the figures appearing on the same line and the lines below in column 5.

Lastly, column 7, as already noted, gives the expectation of life or the average after-lifetime at each year of life. It is obtained as the quotient of the figures in column 6 and the corresponding figures in column 2, for this gives a total number of years lived by survivors of a cohort after a given age, divided by the number of persons entering that age.

A table such as this, it is seen at once, contains a great deal of detailed information and is a source from which

* Read before the Vital Statistics Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

TABLE I

Life Table for White Males in the United States, 1934

1	2	3	4	5	6	7
	Of 100,000 Born Alive		*Rate of Mortality per 1,000*			*Complete Expectation of Life or Mean After-Lifetime; Average Number of Years Lived After Age x per Person Surviving to Exact Age x*
Age	*Number Surviving to Exact Age x*	*Number Dying Between Ages x and x+1*	*Number Dying Between Ages x and x+1 Among 1,000 Living at Age x*	*Number of Years Lived by the Cohort Between Ages x and x+1*	*Total Number of Years Lived by the Cohort from Age x on, Until All Have Died*	
x	l_x	d_x	$1{,}000q_x$	L_x	T_x	$\mathring{e}_x$
0	100,000	5,821	58.21	97,090	6,023,954	60.24
1	94,179	840	8.92	93,759	5,926,864	62.93
2	93,339	413	4.43	93,133	5,833,105	62.49
3	92,926	287	3.09	92,783	5,739,972	61.77
4	92,639	226	2.44	92,526	5,647,189	60.96
5	92,413	191	2.07	92,318	5,554,663	60.11
6	92,222	172	1.87	92,136	5,462,345	59.23
7	92,050	158	1.72	91,971	5,370,209	58.34
8	91,892	139	1.51	91,823	5,278,238	57.44
9	91,753	128	1.39	91,689	5,186,415	56.53
10	91,625	123	1.34	91,564	5,094,726	55.60
11	91,502	124	1.35	91,440	5,003,162	54.68
12	91,378	129	1.41	91,314	4,911,722	53.75
13	91,249	139	1.52	91,180	4,820,408	52.83
14	91,110	150	1.65	91,035	4,729,228	51.91
15	90,960	165	1.81	90,878	4,638,193	50.99
16	90,795	181	1.99	90,705	4,547,315	50.08
17	90,614	196	2.16	90,516	4,456,610	49.18
18	90,418	212	2.34	90,312	4,366,094	48.29
19	90,206	226	2.51	90,093	4,275,782	47.40
20	89,980	239	2.66	89,861	4,185,689	46.52
21	89,741	251	2.80	89,616	4,095,828	45.64
22	89,490	260	2.91	89,360	4,006,212	44.77
23	89,230	268	3.00	89,096	3,916,852	43.90
24	88,962	273	3.07	88,826	3,827,756	43 03
25	88,689	278	3.14	88,550	3,738,930	42.16
26	88,411	283	3.20	88,270	3,650,380	41.29
27	88,128	289	3.28	87,984	3,562,110	40.42
28	87,839	297	3.38	87,691	3,474,126	39.55
29	87,542	307	3.51	87,389	3,386,435	38.68
30	87,235	318	3.65	87,076	3,299,046	37.82
31	86,917	332	3.82	86,751	3,211,970	36.95
32	86,585	347	4.01	86,412	3,125,219	36.09
33	86,238	365	4.23	86,056	3,038,807	35.24
34	85,873	383	4.46	85,682	2,952,751	34.38
35	85,490	403	4.71	85,289	2,867,069	33.54

TABLE I (Cont.)

Life Table for White Males in the United States, 1934

1	2	3	4	5	6	7
	Of 100,000 Born Alive		*Rate of Mortality per 1,000*			*Complete Expectation of Life or Mean After-Lifetime; Average Number of Years Lived After Age x per Person Surviving to Exact Age x*
Age	*Number Surviving to Exact Age x*	*Number Dying Between Ages x and x+1*	*Number Dying Between Ages x and x+1 Among 1,000 Living at Age x*	*Number of Years Lived by the Cohort Between Ages x and x+1*	*Total Number of Years Lived by the Cohort from Age x on, Until All Have Died*	
x	l_x	d_x	$1{,}000q_x$	L_x	T_x	e_x
36	85,087	424	4.98	84,875	2,781,780	32.69
37	84,663	445	5.26	84,441	2,696,905	31.85
38	84,218	467	5.55	83,985	2,612,464	31.02
39	83,751	492	5.87	83,505	2,528,479	30.19
40	83,259	518	6.22	83,000	2,444,974	29.37
41	82,741	548	6.62	82,467	2,361,974	28.55
42	82,193	581	7.07	81,903	2,279,507	27.73
43	81,612	620	7.60	81,302	2,197,604	26.93
44	80,992	663	8.19	80,661	2,116,302	26.13
45	80,329	709	8.83	79,975	2,035,641	25.34
46	79,620	759	9.53	79,241	1,955,666	24.56
47	78,861	809	10.26	78,457	1,876,425	23.79
48	78,052	861	11.03	77,622	1,797,968	23.04
49	77,191	914	11.84	76,734	1,720,346	22.29
50	76,277	968	12.69	75,793	1,643,612	21.55
51	75,309	1,022	13.57	74,798	1,567,819	20.82
52	74,287	1,077	14.50	73,749	1,493,021	20 10
53	73,210	1,133	15.47	72,644	1,419,272	19.39
54	72,077	1,191	16.53	71,482	1,346,628	18.68
55	70,886	1,255	17.70	70,259	1,275,146	17.99
56	69,631	1,326	19.04	68,968	1,204,887	17.30
57	68,305	1,406	20.59	67,602	1,135,919	16 63
58	66,899	1,496	22.36	66,151	1,068,317	15.97
59	65,403	1,591	24.33	64,608	1,002,166	15 32
60	63,812	1,688	26.46	62,968	937,558	14.69
61	62,124	1,783	28.70	61,233	874,590	14.08
62	60,341	1,872	31.02	59,405	813,357	13.48
63	58,469	1,952	33.39	57,493	753,952	12.89
64	56,517	2,028	35.89	55,503	696,459	12.32
65	54,489	2,103	38.60	53,438	640,956	11.76
66	52,386	2,181	41.64	51,296	587,518	11.21
67	50,205	2,264	45.09	49,073	536,222	10.68
68	47,941	2,350	49.02	46,766	487,149	10.16
69	45,591	2,435	53.41	44,374	440,383	9.66

TABLE I (Cont.)

Life Table for White Males in the United States, 1934

1	2	3	4	5	6	7
	Of 100,000 Born Alive		*Rate of Mortality per 1,000*			*Complete Expectation of Life or Mean After-Lifetime; Average Number of Years Lived After Age x per Person Surviving to Exact Age x*
Age	*Number Surviving to Exact Age x*	*Number Dying Between Ages x and x+1*	*Number Dying Between Ages x and x+1 Among 1,000 Living at Age x*	*Number of Years Lived by the Cohort Between Ages x and x+1*	*Total Number of Years Lived by the Cohort from Age x on, Until All Have Died*	
x	l_x	d_x	$1{,}000q_x$	L_x	T_x	$\mathring{e}_x$
70	43,156	2,511	58.19	41,901	396,009	9.18
71	40,645	2,573	63.30	39,359	354,108	8.71
72	38,072	2,616	68.70	36,764	314,749	8.27
73	35,456	2,636	74.34	34,138	277,985	7.84
74	32,820	2,634	80.27	31,503	243,847	7.43
75	30,186	2,613	86.55	28,880	212,344	7.03
76	27,573	2,571	93.25	26,288	183,464	6.65
77	25,002	2,511	100.42	23,747	157,176	6.29
78	22,491	2,432	108.15	21,275	133,429	5.93
79	20,059	2,337	116.51	18,891	112,154	5.59
80	17,722	2,226	125.63	16,609	93,263	5.26
81	15,496	2,101	135.59	14,446	76,654	4.95
82	13,395	1,962	146.49	12,414	62,208	4.64
83	11,433	1,811	158.42	10,528	49,794	4.35
84	9,622	1,649	171.36	8,798	39,266	4.08
85	7,973	1,477	185.28	7,235	30,468	3.82
86	6,496	1,300	200.15	5,846	23,233	3.58
87	5,196	1,122	215.95	4,635	17,387	3.35
88	4,074	948	232.64	3,600	12,752	3.13
89	3,126	782	250.21	2,735	9,152	2.93
90	2,344	630	268.65	2,029	6,417	2.74
91	1,714	494	287.95	1,467	4,388	2.56
92	1,220	376	308.10	1,032	2,921	2.39
93	844	278	329.13	705	1,889	2.23
94	566	199	351.22	467	1,184	2.09
95	367	137	374.62	299	717	1.94
96	230	92	399.54	184	418	1.81
97	138	59	426.23	109	234	1.68
98	79	36	454.89	61	125	1.56
99	43	21	485.63	33	64	1.44
100	22	11	518.53	17	31	1.33
101	11	6	553.68	8	14	1.23
102	5	3	591.16	4	6	1.13
103	2	1	631.06	.2	2	1.03
104	1	1	673.49	..	..	.94

many problems in population study must be answered.* Incidentally, it should be remarked that life tables, as generally constructed, represent a fixed mortality of a particular calendar year or period. Such a table tells us what *would* be the number of survivors to age 10, 20, etc., *if the mortality at each age remained constant as of the calendar year or period for which it is constructed.*

APPLICATIONS OF THE LIFE TABLE

It is significant that two seemingly opposed designations have been applied to the same thing; "Mortality Table" or the "Life Table." Quite in accord with this dual character of the life table, its applications may be broadly classed in two categories—applications relating primarily to mortality and death rates, and applications relating primarily to survivals. In the field of life insurance we find a corresponding duality of interests related to these two aspects of the life table: insurance for the benefit of others in the event of death of the insured; and insurance in the form of endowments or annuities for the benefit of the insured himself in the case of his survival.

Application to problems of mortality—On this occasion we are concerned with applications to general demographic problems. In the first category, applications relating more particularly to mortality, we have, first of all, the direct use of the life table as a gauge or measure of the mortality in a given population or group of persons. The crude death rate, for well known reasons, is not a good measure, because it is quite seriously affected by differences in age composition. Standardized death rates, on the other hand, have the disadvantage that they depend on an arbitrarily selected standard population. The life table is free from this arbitrary feature, and, of course, with its several columns, exhibiting, for a "cohort" or "generation" traced from birth through life, the number of survivors, the number of deaths, the death rate, and the expectation of life at each age, such a table gives much more detailed information than a general death rate, whether crude or standardized.

There is, however, necessarily a relation between the picture presented by the life table and the corresponding general death rate. This is exhibited in Figure I in which there have been plotted, as abscissae, the values of the standardized death rates for white males in each of the states of the Union as of 1929–1931, against the corresponding values of the expectation of life at birth, as ordinates. It will be seen that the scatter of points thus shown clusters very closely about a straight line. In point of fact, the coefficient of correlation is almost unity, its exact value being $r = -.992 \pm .002$. This suggests that the expectation of life could be gauged *approximately* for any one of these states, if the standardized death rate and the regression equation were given. This equation in the present example takes the form

$$e_o = 78.337 - .0174\,d$$

where d is the standardized death rate per 100,000. In Table II the values of the expectation of life thus computed for each state from the regression equation is shown, together with the difference between the value thus computed and that obtained by the more accurate process of computing the life table. It will be seen that in all but two instances the error is less than one year, and in all but seven it is less than one half year. Incidentally, it is of in-

* The details of the computation of a life table are rather highly technical. For a detailed description of two alternative methods that have been employed for this purpose the reader may be referred to *Length of Life—A Study of the Life Table*, by Louis I. Dublin and Alfred J. Lotka, Ronald Press, 1936, p. 307, Chapter XIV.

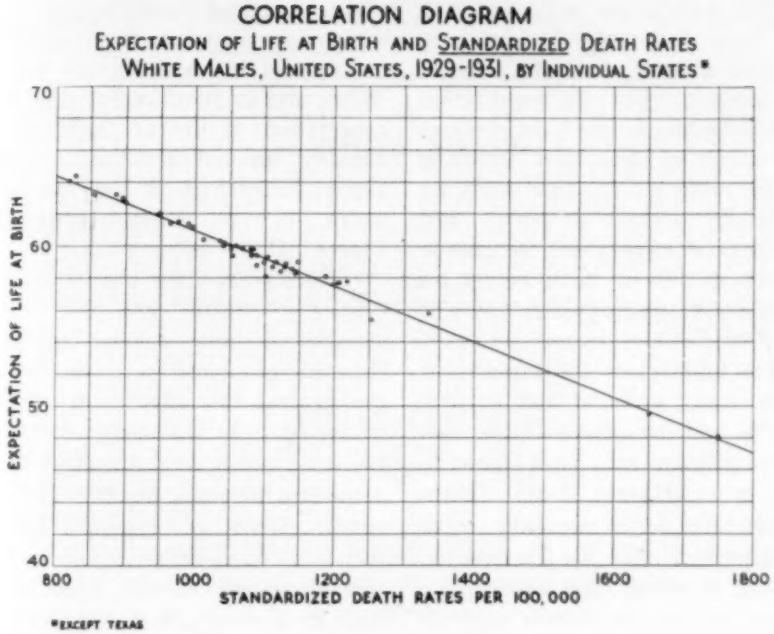
TABLE II

Expectation of Life at Birth and Standardized Death Rates per 100,000 for Each State of the United States, Except Texas, 1929–1931—White Males‡ All Ages*

State	Expectation of Life at Birth $\mathring{e}_0$	Standardized Death Rate	$\mathring{e}_0$ Computed from Stand. D.R. by Regression Equation	
			$\mathring{e}_0$	Col. (4)–Col. (2)
(1)	(2)	(3)	(4)	(5)
South Dakota†	64.38	828.0	63.95	—.43
Kansas	63.24	885.8	62.94	—.30
North Dakota	63.24	855.1	63.47	+.23
Iowa	63.04	896.3	62.76	—.28
Nebraska	62.92	895.5	62.77	—.15
Oklahoma	62.72	900.3	62.69	—.03
Minnesota	61.97	947.9	61.86	—.11
Wisconsin	61.51	975.5	61.38	—.13
Idaho	61.44	962.5	61.61	+.17
Washington	61.37	990.2	61.13	—.24
Oregon	61.17	995.5	61.03	—.14
Arkansas	60.43	1,013.2	60.73	+.30
Mississippi	60.34	1,035.1	60.35	+.01
New Hampshire	60.24	1,042.0	60 23	—.01
Indiana	60.04	1,057.9	59.95	—.09
Vermont	59.97	1,040.7	60.25	+.28
Michigan	59.80	1,083.3	59.51	—.29
Ohio	59.78	1,079.5	59.57	—.21
Wyoming	59.78	1,050.7	60.08	+.30
Connecticut	59.77	1,081.8	59.53	—.24
Missouri	59.76	1,068.4	59.77	+.01
Montana	59.40	1,080.7	59.55	+.15
Alabama	59.37	1,088.4	59.42	+.05
Kentucky	59.37	1,054.1	60.02	+.65
United States§	59.31	1,103.7		
Massachusetts	59.29	1,104.5	59.14	—.15
Illinois	59.02	1,115.9	58.94	—.08
Florida	58.99	1,098.1	59.25	+.26
New Jersey	58.96	1,146.7	58.41	—.55
North Carolina	58.95	1,116.5	58.93	—.02
Georgia	58.92	1,130.6	58.69	—.23
Tennessee	58.76	1,087.7	59.43	+.67
Maine	58.70	1,112.3	59.00	+.30
Virginia	58.69	1,128.6	58.72	+.03
California	58.56	1,139.6	58.53	—.03
Louisiana	58.42	1,145.4	58.43	+.01
Utah	58.42	1,124.2	58.80	+.38
Delaware	58.25	1,145.1	58.43	+.18
West Virginia	58.14	1,102.4	59.18	+1.04
Rhode Island	58.06	1,187.9	57.69	—.37
New York	57.84	1,219.5	57.14	—.70
Maryland	57.72	1,206.2	57.37	—.35
Pennsylvania	57.68	1,207.1	57.36	—.32
South Carolina	57.64	1,198.2	57.51	—.13
Nevada	55.77	1,334.8	55.14	—.63
Colorado	55.40	1,254.4	56.54	+1.14
New Mexico	49.46	1,650.5	49.65	+.19
Arizona	48.08	1,750.4	47.91	—.17

* Standardized on the basis of "Standard Million" of England and Wales, 1901.
‡ White Males include Mexicans
† Based on deaths for 1930 only.
§ Exclusive of Texas and South Dakota.

FIGURE I



terest to compute the correlation coefficient using the crude death rates. The correlation in that case is considerably less close, namely $r = -.752 \pm .063$. Figure II illustrates the much wider scatter of the values of the crude death rate and the expectation of life at birth. The correcting effect of standardizing the death rate shows itself in these results.

Historical study of past longevity—The expectation of life at birth, which we thus recognize as a more efficient measure for purposes of comparison than the simple death rate, gives us an interesting index by which to establish a historical survey of longevity at different periods.

Naturally, data for the remote past are scant and unreliable. Estimates based on tombstone inscriptions in ancient times, indicate that in certain Roman provinces of Africa, the expectation of life at birth may have been about 35 years. In the city of Rome itself, possibly conditions were less favorable, and we may broadly surmise that the expectation of life at birth there was somewhere between 20 and 30 years.

For the long stretch of years from the time of the Roman Empire to the latter part of the 17th century, we have not the basis for even the roughest of estimates. About the end of the 17th century, judging by a somewhat crude table prepared by Halley on the basis of mortality in the German city of Breslau, the expectation of life at birth was about 33½ years. From the early 18th century on, life table construction became more systematic, and indications are that, at the beginning and up to about the middle of the 19th century, an average length of life of 35 or 40 years may have been common in various localities among civilized people. By the beginning of the present century, the figure had risen to about 49 years. Thus there was a gain of about 9 years in the second half of the 19th century,

far outstripping, in proportion, the gain of about 7 years in the preceding 150 years. Since 1900, the improvement has been even faster. At the time of the last census, 1930, our expectation of life at birth here in the United States was just about 60 years, and according to our life table for the year 1933 we had definitely reached 61 years. But we still have 5 more years to gain in expectation of life at birth before we equal the world record which today is held by New Zealand, namely 66 years.

The life table gives the expectation of life not only at birth, but at each year of life, and the question arises how persons of different ages have shared in the gain in expectation of life. Without going into detail, we may recall the familiar fact that the greatest reductions in mortality have taken place in infancy, so that the gain in expectation of life is greatest at birth. However, there are gains in childhood and adolescence and maturity, although one of the facts which we have to record with regret, is that, from midlife on, gains have in recent years been but slight, and in some recent decades the expectation of life at these ages has actually suffered a setback. This is shown, for example, in the case of white males, in the accompanying graph, Figure III.

Curtailment of life due to individual causes of death—The life table is capable of more refined applications than its gross use in connection with the general mortality from all causes combined. As ordinarily constructed, the table makes no distinction of deaths according to cause. But it is a relatively simple matter so to modify the computation, as to obtain a life table representing, for example, the mortality such as it would be if some one cause of death, or a group of such causes, were eliminated, assuming, however,

FIGURE II

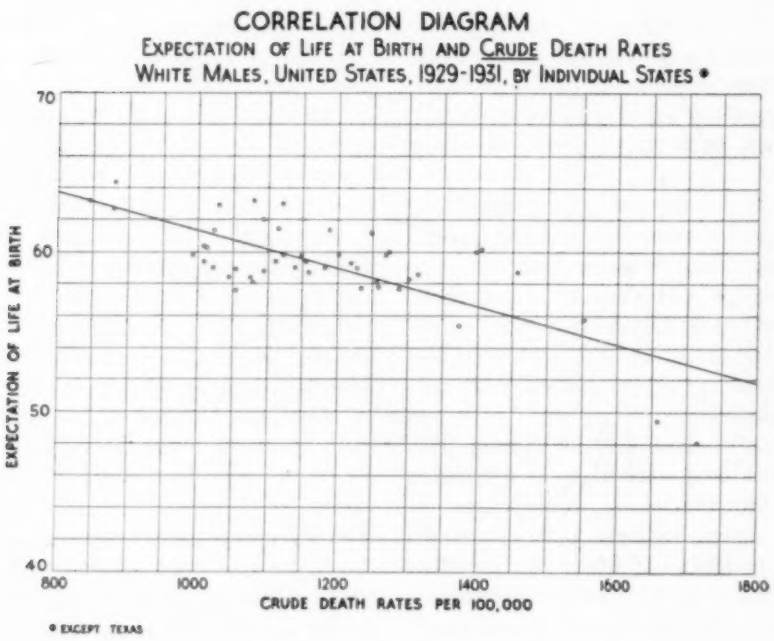
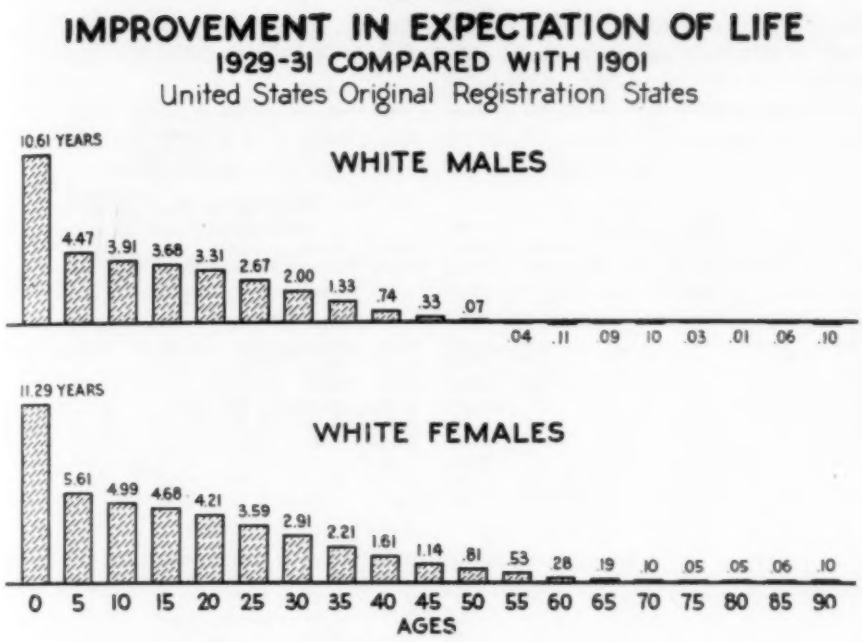


FIGURE III



that the persons thus preserved from death by the particular causes eliminated, were subject to and ultimately succumbed to the mortality from the remaining causes. This computation has been carried out for 8 of the principal causes of death, namely diseases of the heart; cancer, all forms; tuberculosis, all forms; chronic nephritis; cerebral hemorrhage; diabetes; angina pectoris; accidental and unspecified violence. The results of these computations are shown in Table III. The table is so arranged as to show the years of life that would be gained if the specified cause of death could be completely eliminated. So it is seen that the expectation of life at birth would be increased by nearly 2½ years if heart disease could be eliminated. Accidents and unspecified violence also represent a large item in the case of males, accounting for 2 years of life. In the case of females, this is a less serious item, namely 0.80 year. Another large item is cancer, especially in the case of females, 1.79 years. In surveying these figures, it must be borne in mind that, other things equal, a cause of death which operates early in life, or through the whole range of life, naturally produces a greater loss of years than a cause which operates later in life.

An interesting point brought out by Table III, is that the effect of eliminating two or more causes of death together is cumulative. Thus, in column 10 is shown the sum of the individual years of life, that would be gained by eliminating each of 8 causes *separately*. Column 11, on the other hand, shows the number of years of life that would be gained if all these 8 causes were eliminated *simultaneously*. It will be seen that the effect of jointly eliminating these 8 causes ranges from 52 to 81 per cent, according to the age and sex considered, in excess of the sum of the separate effects for each cause. This is a fortunate situation, for it means that our combined efforts to reduce the mortality from various causes result in

TABLE III

Years of Life That Would be Gained by the Elimination, Singly and Jointly, of 8 Causes of Death—White Males and White Females, United States Registration States of 1920 in 1930

	Years Gained by the Elimination of Single Cause										
Sex and Age	*Diseases of Heart*	*Cancer, All Forms*	*Tuberculosis, All Forms*	*Chronic Nephritis*	*Cerebral Hemorrhage*	*Diabetes Mellitus*	*Angina Pectoris*	*Accidental and Unspecified Violence*	*Sum of Individual Effects of Each Cause of Death*	*Cumulative Effect of 8 Causes Combined*	*Per Cent Excess of Col. (11) Over Col. (10)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Males											
0	2.41	1.12	1.10	.97	0.81	0.19	0.27	2.05	8.92	13.57	52.13
12	2.61	1.22	1.11	1.07	0.90	0.21	0.30	1.84	9.26	14.17	53.02
22	2.60	1.23	1.01	1.07	0.92	0.20	0.31	1.48	8.82	13.69	55.22
32	2.62	1.24	0.76	1.07	0.95	0.19	0.31	1.08	8.22	13.01	58.27
42	2.62	1.22	0.51	1.05	0.97	0.18	0.31	0.79	7.65	12.38	61.83
52	2.52	1.12	0.29	1.01	0.96	0.17	0.27	0.53	6.87	11 44	66.52
62	2.26	0.88	0.15	0.91	0.89	0.14	0.21	0.34	5.78	9.89	71.11
72	1.84	0.53	0.06	0.74	0.70	0.08	0.12	0.21	4.28	7.52	75.70
82	1.27	0.23	0.02	0.48	0.42	0.03	0.05	0.15	2.65	4.58	72.83
Females											
0	2.58	1.79	1.09	1.10	1.04	0.37	0.14	0.80	8.91	13.74	54.21
12	2.73	1.90	1.06	1.17	1.11	0.38	0.15	0.58	9.08	14.25	56.94
22	2.70	1.93	0.85	1.16	1.13	0.37	0.15	0.49	8.78	13.95	58.88
32	2.70	1.94	0.51	1.16	1.16	0.37	0.16	0.43	8.43	13.55	60.74
42	2.69	1.82	0.32	1.13	1.18	0.38	0.16	0.39	8.07	13.13	62.70
52	2.58	1.49	0.19	1.03	1.13	0.35	0.15	0.34	7.26	12.22	68.32
62	2.38	1.04	0.12	0.90	1.03	0.26	0.14	0.31	6.18	10.65	72.33
72	1.98	0.59	0.06	0.69	0.82	0.12	0.09	0.28	4.63	8.26	78.40
82	1.38	0.25	0.01	0.42	0.51	0.03	0.04	0.24	2.88	5.21	80.90

more than merely the summation of the individual effects that would arise from the elimination of each of such causes separately. In other words, our gains in this field of work are cumulative. The reason for this is that if, for example, tuberculosis is eliminated at the same time as heart disease, not only those persons would be restored to life who ordinarily would have died from tuberculosis, but also a further number, namely those who, having been saved from heart disease, would subsequently have succumbed to tuberculosis if heart disease alone had been eliminated: and a similar statement holds with regard to those who, having been saved from tuberculosis would subsequently have died from heart disease, if tuberculosis alone had been eliminated.

Application of the life table to problems of survival—In the second category, applications of the life table to problems related more directly to survival, are such problems of great practical importance as the forecasting of the future population, and the making of estimates of the population classified by sex and age during post-censal current years.

Both these problems require for their solution the construction of a population, classified by age, at some subsequent time, as the survivors, at that time, of two groups of persons, namely first, those living at a given earlier period, and second, those that are born in the interim. The number of these survivors is determined by means of a life table, or a succession of life tables, applicable to the period of time considered. The number of births, so far as forecasts are concerned, can only be estimated on some reasonable hypothesis. In the case of estimates of post-censal current population, we stand on

more secure ground in this respect, since we have available statistics of births registered in the years elapsed since the last census.

Application of life table to measure the capacity for growth of a population—An application which has very important bearings on population policy is the computation of the true rate of natural increase, that is, the measure of the excess of fertility over mortality, such as it appears when the influence of temporary features of the age distribution is eliminated. As is by this time well known from our previous publications * the mere excess of the birth rate over the death rate does not give a true measure of this feature. Our low death rate of about 11 per 1,000 gives us a very incorrect idea of the intrinsic mortality in our population. This is evident from the mere fact that in the long run a death rate of 10 per 1,000, after the population had become stationary, would correspond to a mean length of life of 91 years. We all know perfectly well that the average length of life among us today attains no such figure as this. It is only a little over 60 years.

Similarly, our birth rate figure is deceptive. Low as it is, 17.1 per 1,000 (1934), it is still bolstered up by the influence of past high birth rates in giving us a higher proportion of persons within the reproductive ages today than we should have on the basis of our current fertility. If proper allowance is made for this feature, we find for the latest date available a true birth rate of 15.2 per 1,000, a true death rate of 15.8 per 1,000, and, as is now a familiar fact, we find ourselves definitely in the red as regards the balance of fertility over mortality, with a negative true rate of natural increase, namely —.6 per 1,000. The curve of the birth rate, which formerly was above that for the death rate, crossed the latter about 1930 or very soon after.

CONCLUSION

Only a few applications of the life table to problems in vital statistics have been presented by way of example. The list might be extended to include such topics as the probability of dying from specified causes; the age distribution of deaths from specified causes in a generation of persons traced from birth to the extinction of the entire generation; the proportion of widows and of orphans in the population, and the related problem recently discussed by P. Luzzatto-Fegiz in his article The Occupational Evolution of a Generation *; or, to mention one more example, the extinction of a line of descent—a problem which is of interest not only in human vital statistics but also in relation to certain problems in genetics.†

The fact is that possibilities of such applications are legion. It has not been the purpose of this brief paper to attempt even a summary of this subject, but only by a few landmarks here and there to give some idea of the scope and nature of the field. It is the less necessary to attempt here an exhaustive presentation, as we have recently published a volume of some 400 pages dealing, in some detail, with these matters, under the title "Length of Life—A Study of the Life Table." To this volume we must, therefore, refer for further details.

* To these the reader must be referred for details of method of computation. He will find them described in the *Journal of the American Statistical Association*, 1925, pp. 305–339; also, though with less detail in *Length of Life*, by Louis I. Dublin and Alfred J. Lotka, Ronald Press, 1936, pp. 241 *et seq.*

* *Population, J. International Union for the Scientific Investigation of Population Problems*, 1935, Vol. 2, p. 37.

† Lotka, A. J. The Extinction of Families. *J. Washington Academy of Sciences*, 1931, Vol. 21, pp. 377, 453.

Tests and Promotion of Registration of Births and Deaths*

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ETERNAL vigilance is the price of registration.

I may say at once that I do not believe that any state registration office nor any large city office in the United States secures and maintains 100 per cent registration.

There are many reasons for this. In the matter of births, we have to deal with carelessness of the physicians or midwives, and ignorance on the part of other attendants, together with the possible miscarriage of the mails (a rather remote possibility) and a possible slip in the registration machinery, either local or state, a possibility not so remote.

In the matter of deaths, the carelessness of the undertaker is largely responsible, but the laxity of the local registrar is a frequent cause of non-registration when he issues a burial permit on the promise of the undertaker to furnish the certificate later. If the local registrar insists on receiving a complete certificate before issuance of a permit there will be little trouble in this regard. But here also is a possibility of a slip in the registration machinery. Through all registration runs the thread of human error.

Recognizing these factors, it is necessary that a definite and comprehensive plan of checking be developed in all state and local offices and upon these plans rests the success or failure of registration.

It is the purpose of this paper to discuss some of these plans and methods of checking as they have come to our knowledge, and to evaluate them.

In a group of state registrars, I asked the question, "What would happen to registration if the state office would 'lay down' on the job and simply accept the records sent in and make no effort to stimulate or check registration?" The consensus of opinion of these experienced men was that registration would fall to 50 per cent or less in 5 years, and yet I believe that is the attitude of more than one state office.

With the establishment of the U. S. Registration Area, it became necessary for the Bureau of the Census to check those states which had applied, to determine whether their registration met the minimum requirement of 90 per cent which had been set for admission.

The general method of checking was to obtain lists of births or deaths from postmasters, ministers, and other persons not directly concerned with registration matters and then send an agent

* Read at a Joint Session of the State Registration Executives and the Vital Statistics Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 22, 1936.

of the Bureau of the Census to check these lists against the state records.

Perhaps the working of this method may best be described by reciting my own experience in a check made for deaths. In the period covered, between 6,000 and 7,000 deaths had been registered and the agent of the Bureau of the Census presented himself with a list of some 4,000 names—about 60 per cent. Most of the names checked against the city or county from which the report came. Others were located through the state-wide index, the deaths having occurred elsewhere than in the district from which reported. If a death record was not found, it was immediately taken up with the local registrar, with the frequent result that the death was found to have occurred outside of the state. The final result was that 16 deaths (0.4 per cent) were not registered. The value of such lists, however, is doubtful.

I recall one list which checked out perfectly. The names appeared in the exact order in which the certificates were numbered and upon inquiry I found that it had been compiled from the local registrar's record.

A later plan has been to secure lists through the distribution of cards directly to families by postmasters and rural carriers, with the consent and coöperation of the Post Office Department—these cards to be filled out and sent under frank to the Bureau of the Census and then checked with the state records.

It is probable that some type of post-card check is a desirable method of securing information as to births and deaths. The type of card and method pursued are open to question. The distribution of cards and the persons from whom the information may be obtained must of necessity vary with the community to be surveyed.

Under any circumstances there will be many errors in the lists submitted—the births or deaths did not occur in the district from which reported and possibly not within the state, and in checking returns from any type of list or card it is immensely important that a state-wide index be used as the detail of the place or date of the event will often be overlooked or omitted by the informant. No birth or death should be regarded as unreported until it is checked with the local registrar, which will often bring out essential facts such as the misspelling of the name, the date, or the place of the event.

One very definite weakness in our registration machinery is found in the lack of coöperation between the states in supplying information as to out-of-state resident births and deaths. This information is valuable and would aid in the checking of registration and broaden the opportunity for service. As an illustration: An attorney came to our office a short time ago and wanted a death certificate. It was not found to be filed at the place where he said the death occurred. He was very positive that the person had died in his city, but upon further examination of the records it was found that the death occurred at a hospital in Baltimore. I am informed by the Bureau of the Census that not all states are coöperating by sending them copies of their non-resident births and deaths for distribution. I think a more comprehensive plan must be developed for this work.

The use of inexperienced help in any type of check is of doubtful value.

A recent survey made in Georgia was projected on a basis of 3 principal points:

a. The convenient test card survey of the completeness of registration.
b. A survey by enumerators, whose purposes were:
   1. To obtain data in greater detail than was practical by the test card methods

2. To indicate the representativeness of the birth sample obtained by methods of the test card

c. A publicity campaign to emphasize the importance of birth registration in general and to stimulate the prompt return of the test card

A criticism we have to offer of the general plan is directed first to Item (b) the survey by enumerators. If the purpose of this survey was to secure information for other use it might excuse the schedule which enumerators were expected to fill out, but for the purpose of checking the completeness of registration it seems to me so elaborate that it would cloud the whole purpose. I do not think that this effort was worth the time and money it must have cost.

The use of a publicity campaign at the time of making a check is, I think, a mistake. We are not materially concerned with a check except as it will show us the general completeness of registration. A wide publicity campaign will undoubtedly result in physicians following up old records and getting them in, and stimulate a certain amount of reporting at that particular time, which would not be representative of the general conditions. I do not mean to indicate that I consider a publicity campaign of no value. The more we can educate the people as to the value of records, the more nearly complete will be our registration, but the publicity campaign should not be conducted at a time when we are checking for completeness because what we wish to determine is the everyday registration—not the completeness that is stimulated by publicity.

There are many kinds of checks used in different offices and these must vary with the community. We propose to discuss some of the methods in use and are indebted to the Bureau of the Census for information on this matter.

Probably the most common birth check is that of the deaths of infants under 1 year of age to see if a birth certificate has been filed, provided the death certificate shows that the birth occurred in the state. This is routine practice in 38 states. The check should be made in each local and state office promptly. Unless done every month it becomes a tedious job, and the longer the delay in getting after an unreported birth the less chance there is of getting it.

The checking of newspaper lists of births and deaths is of little or no value. The newspapers usually secure their information from the local registrar and the list only includes those births and deaths that have been registered. Such publications have great value otherwise and should be stimulated, as parents naturally look for the publication of the birth in their family and if they do not find it within a reasonable time are apt to investigate and secure the registration.

The routine checking of hospitals for both births and deaths should be done by the local registrar in every district in which a hospital is located. In some of the states it is required that hospital lists be sent routinely to the state offices and this seems good practice. Many physicians attending a birth at a hospital depend upon the hospital to report it. This is bad practice as the hospital has no responsibility in this regard. In our state we have succeeded in arranging with many of the hospitals to prepare a birth certificate as soon as the prospective mother enters the hospital, complete except the date of birth, sex, and name of the child, which can be readily filled in after birth. so the certificate is ready for the physician's signature and delivery to the local registrar. In hospitals which follow this practice the results have been very satisfactory.

The certificate is usually typed and much more easily read than the writing of some physicians. The practice of checking hospital lists is followed in 20 states.

The local registrar can often secure baptismal records from the churches located in his jurisdiction and where this can be arranged it is a valuable check.

In many of our cities the schools require a birth certificate at the time the child first enters school. This practice is not universal, but should be, as it would mean an application for a birth certificate at an early age, and if the birth has not been recorded it can usually be secured from the attending physician who is likely to be available, whereas, if deferred until later life it is much more difficult. Some of the states use the periodical school census as a check of registration, and where available it is good practice, but it would be much more effective if a birth certificate was required as a condition for first entrance into school.

The records of child hygiene clinics are a valuable source of information in checking registration, used in 12 states.

In 15 states the maternal deaths are followed through for birth registration. These are valuable records as far as they go but there are many maternal deaths in which there is no issue such as deaths due to abortion or miscarriage.

Another valuable source of information which should not be overlooked is a check of all cases of communicable disease reported in young children for birth registration. This plan is followed in only 5 states and could well be extended.

In checking deaths many of the states require reports of all coffin or casket sales. In some states casket dealers are required to file a monthly report and deaths are checked against these records. In many rural places it is a common practice for the neighbors to assist the family in the disposal of the body, and a coffin or casket may be purchased from some dealer but no regular undertaker is employed. This type of check is routine in 19 of the states.

The checking of sextons' records, of questionable value, is employed in 5 states. If a burial permit were always required the necessity for this would be obviated as no sexton should permit an interment in a cemetery under his charge without the filing of a burial permit.

This brief discussion of the various methods of checking used in several states is given simply as an outline but none will be of any value unless faithfully and promptly followed through. If the various practices of checking are used simply as a " filler " job to be done when there is no other work they are of very little value.

Many states do not employ a regular field agent but there must be someone available in every state office to take the field when necessary in order to straighten out the many problems which arise. Among a large number of registrars there are bound to be some that are pretty poor and they must be visited occasionally and straightened out. In Michigan it is the practice to send the State Police after local registrars who are delinquent in sending reports. This is effective, the State Police " get their man." A field agent must be fully posted on all phases of the law and be prepared to follow cases through court if necessary.

One of the most potent factors in birth registration is the sending of a birth notification certificate to the parents. The Bureau of the Census has recently developed a new certificate, very pretty to look at, which may be mailed under frank. We do not use this type of certificate in our state because the registration of births is a

state function and the name of the state does not appear on the Census certificate. This is a mistake. We should be able to send these certificates under frank in coöperation with the Bureau of the Census and to send a certificate bearing the name of the state. The certificate should be in attractive form so that it will be prized by the parents. When the mother does not secure a certificate for her baby and her neighbor does, she is immediately concerned about it.

In our state a great many of the certificates are delivered by the nurses. This has the advantage of giving the nurse entry into the home, which might otherwise be difficult, and which helps in correcting errors which may appear in the certificate such as the spelling of the family name, or the name of the child. The capable nurse notes this information, which notation should be signed by the parents, and returns it to the state office for correction, which makes for more perfect records.

Another thing is that it frequently serves as a check on unreported births. When the mother receives a birth certificate for a recent birth, she recalls that she did not receive one for the child born 2 or 3 years before. The smart nurse will get this information and aid in securing a registration of this birth.

When the state office has information of an unreported birth or death, it should never let up until the registration is made, and it is through such channels as those mentioned that such information is secured. If this procedure is faithfully followed, but few births and deaths will escape eventual registration.

The question is often asked, " Do you prosecute a physician for failure to report births? " So far as my own state is concerned, " we do." The reporting of births by the attending physician is a duty which he owes to his patient, to the state, to his profession, and to the law. He should not be permitted to escape this duty. I do not mean to imply that every case not reported within the 5 days required in the law is prosecuted. When we hear of an unreported birth, a letter is sent to the physician asking that he make an immediate filing of the record. If the birth is not included with the local registrar's next report, a follow-up letter is written, and if this is not successful the matter is taken up with the district councillor of the State Medical Society for his district. He usually writes or meets the physician, and in more than 90 per cent of the cases will secure the filing of the certificate.

We have been successful in securing the coöperation of the State Medical Society and the district councillors have been very helpful in aiding the department in securing registration. This is a point that should not be overlooked in any state. The Medical Society naturally does not wish to see its members prosecuted for violations of the law and is frequently willing to go a long way to help in the matter of reporting.

If these efforts are not successful, the matter is then turned over to the enforcement officer for the department, with the result—prosecution.

Within the last few years, one physician who had been a constant violator of the law lost his case in the Circuit Court and appealed it to the Supreme Court, with the result that we had a splendid decision from the Supreme Court absolutely settling for all time the question of responsibility of the physician for reporting births. The court ruled that the state has a right under its police powers to demand these records.

The physician is protected in his practice, and in appreciation of that

protection should certainly comply with the law requiring registration of births.

So far as the undertakers are concerned, we rarely go into court with a case but take it up with the board having to do with the licensing of embalmers, and if necessary secure the revocation of the license. This is more effective than taking the matter into court where an offender would be assessed, at most, a small fine.

When necessary to make a prosecution, newspaper publicity is given as a warning to other careless physicians.

I do not wish to indicate that I think the survey made in Georgia and in other places was without value. Any publicity and checking will result in better education of the people as to the value of registration and undoubtedly tends to improve it, but it is of no great value as a test of the completeness of registration.

Some plan should be developed by the Bureau of the Census and by the states that would give a more or less continuous check on registration. The checking of states occasionally is of little value. In our state there has been no check of registration by the Bureau of the Census since 1921. Such check should be carried on continuously. Every state official knows or should know the weak districts in his state. There are always a few physicians that are continuously delinquent or careless in filing their reports.

The plan I would like to see put into operation in our state—and will apply equally well in other states—is to select certain districts every month or every few months, have the Bureau of the Census secure such lists as they can from those districts and send them to the state office to be checked and followed up. If we could follow such a plan, picking the counties or districts where we felt the completeness of registration was doubtful, we would soon educate the physicians in those areas to be more prompt and accurate in filing their records. I know that the psychological effect is good when we are able to walk into a physician's office and say: "You have not reported the birth of so-and-so." He may wonder how you got your information but the fact that you did have it will cause him concern and make him more careful. It is one thing to visit a physician and talk to him in a general way about the reporting of births, and quite another when you have definite information. Your approach is entirely different and no excuse or general statement will evade the fact that he has been delinquent.

I appreciate the attitude of the Bureau of the Census that no check which is not made under their personal representative is of any value, but I think they are wrong. The state registrar who knows his job is just as anxious to get the facts as the Bureau of the Census could possibly be, and he may be trusted to report the facts. There should be closer contact between the Bureau of the Census and the state registrar, for the Bureau of the Census is entirely dependent upon state registrars for such records as they have. Their statistics cannot be any better than the state registrars make them.

The plan of regional meetings of state registrars started about 2 years ago was one of the best moves made by the Bureau of the Census, and the plan should be continued and enlarged. It is hoped that the Director of the Census will put into his budget a sufficient amount to cover not only regional meetings but at least one general meeting a year, to include all state registration executives.

The proposed plan of the Bureau of the Census to divide the country into districts and to have a representative of the Bureau of the Census resident

therein, with supervision over the states in his district will be of value only if the person thus assigned is trained in state registration. This training cannot be secured in the Bureau of the Census or anywhere except in a state office. This is equally true of the plan which has been discussed of having a representative of the Bureau of the Census in each state office.

A few years ago the issuance of certified copies of records was a very minor detail of office routine, but has now become a major activity in states having old records, due to the old age pension and insurance demands. In states where the records are relatively new this is probably not so much of a problem. In Michigan the records date back to 1867.

To do effective work, a state registrar should have a public health background in order that he may understand the best use of his records in aiding the department of health in building its program. He must also understand their legal value and be prepared to meet it intelligently.

The value of these records increases enormously as they approach complete registration, and every effort should be made to reach this end. Constant checking and careful attention must be routine in every state office.

Eternal vigilance is the price of registration.

Scholarship in Training for Post in Tuberculosis Field

IN accordance with action taken by the members of the National Conference of Tuberculosis Secretaries at the New Orleans annual meeting on April 22, 1936, a full tuition scholarship of $300 is being made available for the academic year September, 1937, to June, 1938. After careful canvass, the Department of Public Health of the Yale University School of Medicine, New Haven, Conn., has been selected.

Applicants must have a Bachelors Degree for a 4 years' undergraduate course in a college, university, or technical school of approved standing. Preference will be given to those who have had courses in bacteriology, chemistry, physiology, psychology, economics, and sociology and to those who have had practical experience in a tuberculosis organization. The nature and quality of the collegiate work of the applicant and personality qualifications will also be considered.

The scholarship is available to those now engaged in tuberculosis work as well as to others, including those who expect to graduate from college in June.

Application blanks may be secured from Professor Ira V. Hiscock, Department of Public Health, Yale University School of Medicine, 310 Cedar Street, New Haven, Connecticut. The scholarship will be awarded on or about June 21, 1937, and applications should be made *not later than May 28*.

The Use of Lay Boards by Official Health Agencies*

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PUBLIC health nurses have been employed by health departments in cities of the first class in Minnesota since 1909. However, not until 1919 did the Minnesota Legislature authorize the expenditure of public funds for public health nursing services throughout the state. As a nurse working alone seemed distinctly out of place in a county and as there was no county-wide health organization under which the nurse employed by county commissioners might work, the same law provided that she should be directed by the county health officer, the county superintendent of schools, or the county child welfare board. The county health officer in Minnesota was usually a non-salaried person with jurisdiction only over non-organized territory. The superintendent of schools, while interested in the health of school children, was hardly in a position to direct a health program. The county child welfare board consisted of 5 lay people authorized by law to promote the enforcement of laws for the protection of defective, illegitimate, dependent, neglected, and delinquent children. Because of the impracticability of developing a well balanced public health program under this arrangement the law was amended in 1925 as follows:

> *Section 6.* Chapter 196—S.F. 495—The board of county commissioners of any county may detail county public health nurses to act under the direction of the County Board of Health or a nursing committee composed of at least 5 members as follows:
>
> The County Superintendent of Schools
>
> The County Health Officer or a physician appointed by the county commissioners
>
> A county commissioner appointed by the county commissioners
>
> Two residents of the county appointed by the county commissioners
>
> *Section 7.* The nursing committee of each county shall effect a permanent organization, and meet at regular intervals with the nurse or nurses.

In order to coördinate the work of the various local organizations interested in some phase of health work and with whom the nurse desires to coöperate, it has often been necessary to enlarge this committee of 5. In many counties it has formed the nucleus for a much more representative group.

These public health nursing advisory committees, as they are called, have been found to be wonderful stabilizers, not only in maintaining a continuous public health nursing service but also in developing sound public health programs based on community needs. They have no authority but merely act in an

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advisory capacity to the board employing the nurse. As this board has approved their appointment, recommendations made by the committee are usually accepted. They serve without compensation or even reimbursement for necessary expenses to attend committee meetings which are usually held once a month. In general their functions may be said to be threefold.

First, administrative—Raising the annual budget is an important function of the committee, as in many instances the county appropriation must be supplemented. This is usually accomplished by pooling the resources of the various agencies interested in the work throughout the county. The committee also selects the public health nurse and recommends her appointment by the Board of County Commissioners. Credentials of available candidates who are eligible for state certification supplied by the State Department of Health are studied. Usually one or more candidates are interviewed by the committee, or some member delegated by them, before a selection is made. The need for qualified workers is quickly sensed by the group and the state tries to refer only those applicants who meet particular local requirements.

The second function of the local nursing advisory committee is that of planning the program with the nurse and setting up the policies which shall govern the service. More and more we find the committees setting up a sound, long range program based on the needs of the community, taking into consideration the available resources. The summaries of public health nursing reports sent out annually by the State Department of Health are carefully studied as to state-wide trends. The *Rural Appraisal Form* of the American Public Health Association, in its application to local needs, is often used as a guide in evaluating the service.

The need for a clear understanding and close coöperation with the local medical and dental professions is appreciated by these committees, and the practising physicians and dentists. In many counties, in addition to having one or more doctors on the nursing advisory committee, a medical advisory committee has been appointed by the County Medical Society which is composed usually of 3 physicians who help set up policies governing the service and standing orders for the nurse. Modified to meet local needs, these are usually based on the standing orders and policies drawn up and approved by the State Medical Association. This local medical advisory committee also has referred to it problems regarding policies which may arise from time to time, *e.g.*, whether or not a clinician will be brought into the community from outside, whether or not school children will be examined in school or in the physician's office, procedures for carrying out immunization and vaccination programs, etc.

The third function of the committee is to interpret the service to the community and guide the nurse in developing that service. This, of course, does not mean that a lay committee advises regarding nursing technic, rather, they help decide how to make most effective for their community a program in conformity with well established practices in the field of public health.

In addition to the central administrative committee, about 4 auxiliary or sub-committees are usually organized throughout the county which bring more closely together the needs of local communities and the service available to them. They also help to interpret and augment the services of the nurse. The committees are encouraged to report the work they do to the Central Committee which in turn sends it to the State Department of Health.

Examples of their activities are:

1. Report prenatal, infant, communicable disease and other cases needing attention
2. Organize immunization, vaccination, or other clinic programs
3. Establish loan closets, furnish obstetrical packages for home delivery, and layettes
4. Transport patients
5. Organize classes for the nurse to teach
6. Distribute literature, write newspaper articles, and give talks
7. Establish loan funds for corrective work

While advisory committees have been developed in Minnesota chiefly in response to a need in rural areas where a nurse has been the only paid health worker, the plan is also proving very effective where full-time health units are organized. Among the most active auxiliary groups in the state are those found in a county health unit.

In order that the advisory committees may become familiar with the trends in public health nursing policies and practices, and be guided in their local application of them, field nurses from the State Department of Health attend committee meetings as often as possible.

A state manual for committee members to supplement that of the National Organization for Public Health Nursing is compiled and brought up to date each year by the State Department of Health. The members are urged to plan study courses and are also invited to attend the refresher courses planned for public health nurses and committee members.

The advisory committee for school nursing services is usually called "School Health Council." The personnel is appointed by the school superintendents who are more and more appreciating the value of participation on the part of the community. School Health Councils function similarly to the County Nursing Advisory Committees.

With the availability of federal funds for aid to local nursing services, new impetus has been given to Nursing Advisory Committees since one of the requirements made by the State Board of Health is that there must be direction of the program by a local advisory committee with medical and dental representation.

Carrying the idea of working through an advisory committee, the State Board of Health has since 1925 used the recommendations of the State Certification Committee * as a basis for determining the professional qualifications of public health nurses who are referred for positions in the state.

The councillors of the State Medical Association have agreed to act in an advisory capacity to the Board of Health in guiding the development and extension of health work under the Social Security Act.

A state-wide advisory committee on maternal and child hygiene was first appointed by the State Board of Health in 1922. This committee remained active until after the program began functioning smoothly. Recently with the expansion of maternal and child health work through the U. S. Children's Bureau, this committee has been reorganized. As in local communities, the personnel has been carefully selected to represent agencies and individuals especially interested in child health work. As in counties and communities, this state-wide committee we hope will stabilize the service by tying up the interests and directing them toward a common purpose or goal.

We are increasingly impressed with the value of working through and with the type of committees which I have described. Improving health habits and methods become an inherent part of community life for they are acquired —not received—by the community.

* Law Relating to Public Health Nursing. Chapter 196—S.F. 495, Section 4.

In conclusion, I should like to emphasize the following points:

1. The effectiveness of the nurse in the community is measured by her ability to work through an advisory committee. The nurse who is well prepared for her job appreciates the significance of that fact.
2. Public health nursing is a community service and as such requires community participation. The service is of such a nature that it should appeal to the best minds of the community.
3. Professional guidance is indispensable to the stability and effectiveness of the public health nursing service.
4. An opportunity for growth must be provided both for the advisory committee and the nurse through contacts with professional leaders and study groups.

DISCUSSION

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IN her conclusions, Miss Peterson has stressed one point which I feel cannot be over-emphasized, namely, that "professional guidance is indispensable to stability and effectiveness of public health nursing service." This applies not only to nursing service but is a fundamental factor which must always be kept in mind when lay groups participate in any official public health activities.

A cardinal principle in the promotion of public health activities is recognition of the fact that the official health agency is the body which is responsible for public health activities of any community.

The success or failure in the use of lay boards by such agencies will depend very largely on how well the resources and activities of such groups can be coördinated with the official public health program. But, regardless of how well these principles are acknowledged unless a definite objective is recognized, and the coördinate program aimed toward the attainment of that objective, little will be accomplished. When I say objective—it implies that there is a problem to be solved. The public health official must, therefore, determine:

1. What does he wish to accomplish? In other words, what is his objective?
2. What is the problem involved? (I will not rehearse the methods to be employed in this determination.)
3. What is being done to solve the problem?
4. What facilities are now operating?
5. Is the problem being solved or is ground being lost?
6. What resources are available which can be brought to bear in the solution?
7. How can such available resources be coördinated so that greater progress will be shown toward attainment of the objective?

After these questions have been answered, the problem can be approached with a sane program and with hope of success.

Official public health agencies are often lacking in resources and facilities, whether they be funds, personnel, or housing facilities. These deficiencies and shortcomings may frequently be obviated by the use of lay groups who are the possessors of potential resources. On the other hand, suspicion, fear, and jealousy, accompanied by misunderstanding, are the chief retarding factors among lay groups. With a well rounded program, guided by the official health agency, these are reduced to a minimum.

Therefore, coördinate the available resources under the direction of the official health agency, as the body responsible for public health activities in the community. By the application of these basic principles an organization

may be developed whereby the work is not only made easier but much more effective.

The official health agency should keep a list, catalogue, or roster of all organizations on which a call can be made for assistance; as much as possible should be learned about their resources and plans in public health.

The technic of contacting such groups and soliciting their assistance in public health activities is very important. On every lay board there are key men or women, who usually direct the trend of thought and often lead in the activities. It is these key individuals with whom contact must be made. It is almost impossible to sell an idea to a group when the key men are not in accord. It is easier to contact one or two individuals and sell the program to them than it is to convince a large group. Convince the key man and he will sell the ideas to the group much better than you can.

This is not as easy as it may seem. Do not be confused by appearances. The key man is not always the chairman or president of the group. He may be a person who shuns the limelight but who will always be found as a powerful influence behind the scenes. Solicitous inquiry will aid in finding the leader. Go slow. Be sure. Many a good program has fallen through because a mistake was made in picking the key man.

After the key man has been picked, go ahead; cultivate him; acquaint him with the official program and solicit his help in selling the proper ideas to his group. Contacts of this nature demand considerable diplomatic resourcefulness and must frequently be delegated to a third party. In that case, select someone who is acquainted with the program and induce him to make the contact.

After the contact has been made and the ideas have been sold, the catalogue, which has previously been set up, should be made more complete. Hold this catalogue or file as a ready reference to be used in coördinating the general program. Having thus catalogued the groups and their respective resources, a further study should be made of the general public health problems so that the resources of the proper groups may be utilized at the strategic time.

Do not expect lay groups to spend all their time and resources on the public health program; they probably have other interests—use common sense and caution not to over-promote.

On the other hand, some groups must be kept continually active to retain their interest. It is with these that the greatest difficulty is encountered. It means that practically each individual of such groups must be made to feel that he or she has a personal interest in and is an integral part of the program. Such members must be given specific tasks or responsibility which will help to sustain their interest; otherwise they lose enthusiasm. This soon results in a disintegration of activities and the program falls by the way. Loss of interest is largely the result of wrong leadership in the group.

Then again, we find the socially minded persons, those well meaning but often ill advised individuals who have an unquenchable urge to do something for the welfare of mankind. With these, an effort should be made to win sympathy and coöperation. A close study should be made of their plans and objectives so that their whole program can be clearly seen and evaluated. If the confidence of such individuals is gained, advice will usually be heeded and a program established which will agree with the ideas of the official agencies. If situations of this nature are not properly handled the overzealous leader may become impatient and start work independently through

agencies other than the official public health body. This invariably results in duplication and confusion.

Voluntary health organizations are a great stimulus to the promotion of public health and many of the present accepted principles and procedures owe their origin to such lay groups. If they are properly contacted and their resources catalogued, much good work can be accomplished through them in attaining the objective. However, over-enthusiasm in some particular phase of public health work and pressure by such groups have been responsible for many unbalanced programs. The programs of lay groups should be planned so that they coöperate with the official public health agency and not aim to direct the official activities. Friction may be avoided and coördination established when this principle is recognized and respected, namely, that the official public health agency is the body which is responsible for the public health activities in the community.

Governor Lehman on Syphilis Control

UP to now, false modesty has interfered with the free discussion of syphilis, and although its ravages have been present on every hand, we have not been as well informed regarding them as we should be. I am glad to have had a part in the lifting of the veil of secrecy, and the breaking up of the conspiracy of silence in New York State. Let me assure you that once the facts now being circulated become generally known the humanitarian appeal of syphilis will be fully as great, or even greater than that presented by any other communicable disease. . . .

I am informed that the State of New York is now spending $2,500,000 annually for the care and treatment of patients with syphilis of the brain in mental disease hospitals. If the cost of this single condition could be eliminated or materially reduced, larger expenditures even than those which state and local governments are making today would be fully warranted. Brain disease is only one of the end results of syphilis. Besides persons with this condition, state institutions harbor blind and crippled individuals and many other syphilis victims. If one could add to the cost of maintaining wards of the state, the sums spent for the treatment of the late results of syphilis in general hospitals, losses due to the disease in industry, the cost of accidents caused by persons with brain infections, and the cost of the removal from society by death or disabling illness of workers during their productive years, the total would reach an appalling figure.

I am convinced that it is vastly cheaper to attempt to do away with syphilis than to allow this pestilence to continue unchecked. Having these firm convictions, I should as Governor have failed in my duty to the citizens of New York State if I had not fully supported the new syphilis control program when first proposed by Dr. Parran. This support I have continued, and intend to continue as long as funds appropriated for syphilis control are wisely spent. — (Abst.) Governor Lehman's speech on Syphilis Control at the Albany Syphilis Control Institute, Feb. 4, 1937.

Practical Value and Significance of the Complement-Fixation Reaction in Amebiasis*

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THE complement-fixation test for amebiasis was placed on a practical clinical basis by Craig,[1-6] and his observations have since been corroborated by Sherwood and Heathman,[9] Spector,[10], Kiefer,[8] Tsuchiya,[13] and Weiss and Arnold.[14, 15] The specificity of the reaction as a diagnostic measure in amebiasis has been satisfactorily established, and the reports of its use indicate that it is of considerable value in the diagnosis of obscure cases in which it is difficult or impossible to find *Endamoeba histolytica* in the stools, and in following the effect of treatment. In the reports thus far published the reaction has been positive in nearly all cases of clinical amebic dysentery and amebic abscess of the liver, in persons with obscure symptoms due to amebic infection, and in most infected persons who present no clinical symptoms.

The antigen for the test is usually made from cultures of *E. histolytica,* although Craig [7] has prepared a satisfactory antigen from the mucoid material removed from the intestines of experimentally infected dogs. Alcoholic extracts of cultures prepared by various methods have proved useful. No antigen has yet been developed, however, with as high an antigenic titer as the antigen ordinarily used for the Wassermann reaction. Craig has used the antihuman hemolytic system, but others who have published reports have preferred the antisheep hemolytic system because of greater convenience. Only those reactions which show a 3+ or 4+ inhibition of hemolysis on a 4+ basis are generally interpreted as positive. In following courses of treatment, however, 1+ and 2+ reactions have been considered significant. We have performed this test on the blood of 171 humans, 39 dogs, 25 *Macacus rhesus* monkeys, and 2 rabbits. The purpose of this report is to present the results of these tests and to discuss their significance in relation to the invasion of the tissues of the host by *Endamoeba histolytica.*

METHODS

We have employed various antigens in the tests to be reported. Our first antigen was furnished by Craig, which was satisfactory except for its low antigenic titer. Our second was a lipoid antigen prepared according to the

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method of Sherwood and Heathman.[9] This antigen had a higher antigenic titer but was highly anticomplementary. Our third antigen was sent to us by Captain William S. Stone of the Army Medical School, and was prepared from culture cysts by alcohol extraction according to the method described by him.[12] This antigen had a satisfactory antigenic titer and did not become anticomplementary until about 9 months after we received it. For the past 6 months we have used an antigen similar to Stone's except that it has been prepared from motile culture amebae instead of from cysts. The antigen for our routine tests was made from our strain B–1 which has shown a high degree of pathogenicity for kittens.

We have prepared similar antigens from another human strain (our strain A–1), having a low degree of pathogenicity for kittens, and also from a monkey strain (N.R.S.) sent to us by Clifford Dobell of London and which has shown a very low degree of pathogenicity for kittens. These gave approximately the same antigenic titrations as the antigen prepared from strain B–1, indicating that there seems to be no antigenic difference between these human and monkey strains of *E. histolytica*. In performing the tests we have used the antisheep hemolytic system with preliminary incubation at refrigerator temperature. Complement, amboceptor, and sheep cells have been obtained from the Wassermann laboratory of the Vanderbilt Hospital where the titration of these substances was performed.

RESULTS

Complement-fixation tests on animals—A brief summary of our results in animals will be sufficient for this presentation. Dogs consistently developed amebic dysentery when inoculated with *E. histolytica* and concurrently developed positive complement-fixation reactions. Spontaneous elimination of the intestinal infection in one dog was associated with loss of complement-fixation. Rabbits (which are not susceptible to intestinal infection with *E. histolytica*) developed positive complement-fixation reactions following the intraperitoneal injection of *E. histolytica* extracts, and these reactions persisted for a period of at least 7 months. *Macacus rhesus* monkeys having natural intestinal infections with *E. histolytica* or experimentally infected with a human strain did not give positive complement-fixation reactions, with one exception, and showed no macroscopic or microscopic amebic lesions at autopsy. The one exception was an experimentally infected monkey which gave one positive reaction on the 5th test performed, but negative reactions on 11 subsequent tests, and no lesions at autopsy. Monkeys inoculated parenterally with ameba extracts developed complement fixing bodies which were evanescent in 3 animals and persistent in 1 of 2 monkeys having an intestinal infection without lesions. In all of these observations on animals, with the possible exception of 1 test on 1 of the monkeys, a positive complement-fixation test was associated with invasion of tissue by the amebae or injection of ameba extract; and a negative reaction was associated with absence of demonstrable tissue invasion.

Complement-fixation tests on man—Our tests in man will be divided into 2 groups; (1) tests performed on patients and other persons connected with the medical school and hospital, and (2) tests performed on a group of symptomless "carriers" of *E. histolytica* residing in a rural community.

Table I shows the results of tests in both groups. All of the 21 persons giving positive complement-fixation reactions were in the medical school and hospital group. It will be seen that

TABLE I

Results of Complement-Fixation Tests for Amebiasis in Man

Stool Examination for E. histolytica	Complement-Fixation for Amebiasis		
	Positive	Negative	
		Hospital	Jackson County
Positive	17	7	16
Negative	4	50	77
Total	21	57	93

of these 21 persons 17 showed *E. histolytica* in the stools while 4 did not. Among those giving negative complement-fixation, 7 of the hospital group and 16 of the rural community group harbored *E. histolytica* in the stools.

Table II gives an analysis of the clinical symptoms in cases giving a positive complement-fixation reaction. We are particularly interested in the group showing positive complement-fixation in the absence of demonstrable *E. histolytica* in the stools. The case listed as amebic abscess of the liver was in a white man, 29 years old, who had had an amebic liver abscess which had been drained on two occasions. He returned to the hospital 5 years after the second drainage with slight pain in the right lower chest and right upper abdomen. His symptoms subsided upon rest in bed. Because of the positive complement-fixation test the patient was treated with carbarsone by mouth, but the complement-fixation reaction was again positive 4 months later although the symptoms had not recurred. We believe this patient probably has a persistent focus of amebic infection in the liver. The 3 cases listed as ulcerative colitis were treated with carbarsone and their complement-fixation tests became negative coincident with marked clinical improvement, indicating that they were probably amebic in origin. Kiefer,[8] Craig,[5] and Tsuchiya,[13] have reported similar cases.

The other group demanding special consideration consists of the cases in Table I in which the stools contained *E. histolytica* but the complement-fixation test was negative. The tests on the 7 persons in the hospital group were performed because *E. histolytica* had already been found in the stools. None of these presented symptoms suggestive of an amebic origin, and in the light of our observations on monkeys, it seems probable that they were cases of intestinal amebiasis in which the amebae were present in the lumen of the intestine but had not invaded the tissues.

Our previous studies in which the pathogenicity of various strains of *E. histolytica* was determined by means of kitten inoculation suggested that the invasive tendency of different strains varies widely. In order to study this point further we obtained blood and stool specimens from 93 persons living in a community in Jackson County, Tenn., where previous observations had shown that about 40 per cent of the inhabitants harbored *E. histolytica* although active amebic dysentery was

TABLE II

Clinical Symptoms in Cases Giving Positive Complement-Fixation Reactions for Amebiasis

Clinical Symptoms	Stool Examination for E. histolytica	
	Positive	Negative
Active Amebic Dysentery	3	0
Amebic Abscess of Liver or Hepatitis	1	1
Ulcerative Colitis	0	3
Indefinite Abdominal Symptoms	4	0
Other Clinical Symptoms	8	0
No Clinical Symptoms	1	0
Total	17	4

entirely absent from the community. Experimental study of 2 strains of *E. histolytica* from this community had shown that the strains usually produced mild lesions in kittens. The results of our blood and stool examinations in this community are shown in the third column of Table I. All of the 93 persons gave negative complement-fixation, although 16 of them were found to harbor *E. histolytica* in the stools. These tests were performed not only with the antigen prepared from our more pathogenic (B–1) strain but with the antigen prepared from strain A–1 which had been obtained from this community. Strongly positive reactions with the known positive sera used as controls in this series of tests assured us that the completely negative result was not due to faulty technic. These findings not only confirm our previous observations as to the mildly pathogenic nature of the strains of *E. histolytica* present in this community, but also suggest that the reason for the absence of symptoms of amebic infection in the community is that, in many cases at least, the amebae did not invade the tissues at all, but multiplied in the lumen of the intestine, as they did in our monkeys, and as other species of amebae, such as *E. coli,* are known to do in man.

Large and small races of E. histolytica—Spector [11] has recently reported that, in her observations, the small races of *E. histolytica,* that is, those whose cysts measured up to 12 μ in diameter, did not give rise to positive complement-fixation reactions, whereas large races gave rise to positive reactions in almost every instance. Our experience does not coincide with this. We have classified as small races those whose cysts measured up to 9 μ in diameter, but even with this more restricted grouping 4 of our 17 patients who gave positive complement-fixation reactions showed only the small race in the stools. Among our cases harboring *E. histolytica* with negative complement-fixation reactions, 18 showed the large race and 5 the small race in the stools. All of our naturally infected monkeys have harbored large races of *E. histolytica* and a large race was employed in our experimental infections in monkeys, and in these animals complement-fixation was almost uniformly negative. Our observations suggest that the size of the cysts passed in the stools is not a reliable criterion on which to base the pathogenicity of strains of *E. histolytica.* Apparently the small races as well as the large ones may invade the tissues.

DISCUSSION

Our use of the complement-fixation test in amebiasis has convinced us that it has a practical value in detecting obscure cases of infection with the dysentery ameba and that it could with advantage be used more widely in hospitals and in private practice. The test is still, however, in the developmental stage, and may easily fall into disrepute if it is performed by inexperienced persons.

Craig [6] has called attention to the value of the test in following the effect of treatment. All of our positive cases which were treated and followed with the complement-fixation test ultimately gave negative reactions. Although the reaction may again become positive with a relapse, a persistently negative reaction probably indicates cure. A persistently positive reaction, as was obtained in our case of recurrent amebic abscess of the liver, probably indicates the persistence of an amebic focus in the body.

A negative complement-fixation reaction is of particular value in two groups of patients: (1) patients with chronic diarrhea or other symptoms suggestive

of amebiasis, in whose stools *E. histolytica* cannot be found; (2) patients formerly known to have had amebic dysentery, who continue to have vague abdominal symptoms, or who fear they are not cured. Such instances are numerous among persons who have lived in the tropics. In both of these groups the negative blood reaction gives reasonable assurance that amebic infection is absent.

Craig,[6] Spector,[10] and Tsuchiya [13] have reported cases in which the stools contained *E. histolytica* but the complement-fixation test was negative. Some of these were cases of acute amebic dysentery which would probably have developed positive reactions if the infection had persisted beyond the acute stage. Craig reported 1 case diagnosed as amebic abscess of the liver with *E. histolytica* in the stools, but giving a negative complement-fixation reaction. This probably represents a very small group of individuals incapable of antibody response to infection. The other cases reported by these authors as having *E. histolytica* in the stools with a negative complement-fixation reaction presented either indefinite symptoms or no symptoms. Our observations add 23 cases to this group. In the light of our observations on monkeys we believe that these persons harbored *E. histolytica* in the lumen of the intestine without invasion of the tissues. The duration of such infections in man has not been determined, but it is conceivable that they may be of long duration as similar infections in monkeys appear to be.

Despite our evidence that *E. histolytica* may sometimes exist in the intestine without the production of lesions, every case in which this ameba is found in the stools should be treated with an amebacidal drug, both for protection of the individual and for the protection of others. A single strain of *E. histolytica* may produce no symptoms in one individual and severe amebic dysentery or abscess of the liver in another, and it is impossible to predict what will happen in any one case.

Finally it must be emphasized that the complement-fixation test should not replace diligent search for *E. histolytica* in the stools in suspected cases. A positive complement-fixation test is only presumptive or confirmatory evidence of amebic infection. Accurate diagnosis can be based only upon identification of *E. histolytica* itself in the stools or in the tissues of the body.

SUMMARY AND CONCLUSIONS

1. Dogs experimentally infected with *E. histolytica* uniformly developed a positive complement-fixation reaction for amebiasis associated with active amebic dysentery.

2. Rabbits injected with antigen prepared from *E. histolytica* developed a persistently positive complement-fixation reaction.

3. *Macacus rhesus* monkeys having natural or experimental intestinal infections with *E. histolytica* almost uniformly showed negative complement-fixation reactions, and such reactions were associated with absence of any demonstrable tissue invasion by the amebae.

4. Monkeys receiving parenteral injections of antigen prepared from *E. histolytica* developed positive complement-fixation reactions which usually were of short duration.

5. Most human infections with *E. histolytica* encountered in medical practice were associated with positive complement-fixation reactions.

6. Some obscure clinical cases in which *E. histolytica* could not be demonstrated in the stools, showed positive complement-fixation, and were benefitted by antiamebic treatment, indicating that they were actually cases of amebic infection.

7. The complement-fixation test is of value in following the effect of treatment in amebiasis and in determining whether residual symptoms are due to the persistence of the amebic infection.

8. A significant number of persons harboring *E histolytica* in the intestine gave negative complement-fixation reactions. In addition to 7 such cases encountered in our hospital tests, 16 were encountered in a series of tests on the inhabitants of a community in which a high incidence of *E. histolytica*

was present without the occurrence of amebic dysentery.

9. We conclude from these observations that a positive complement-fixation reaction in man is presumptive evidence of the presence of amebae in the tissues, and that most infected persons giving a negative reaction (except those in the early stage of the infection) harbor the parasite only in the lumen of the intestine without tissue invasion.

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Mothers' Milk

DR. Shirley W. Wynne,* President of the Children's Welfare Federation, New York, N. Y., announced the results of a survey conducted by the Mothers' Milk Bureau which revealed that 1,356,393 ounces of life-preserving mothers' milk was supplied by the bureau to more than 5,000 prematurely-born and dangerously ill babies from 1921 up to and including 1936. Thirteen hundred and forty-one mother-donors furnished this enormous quantity of mothers' milk, which can be secured only when prescribed by a physician.

The Mothers' Milk Bureau was founded in 1921 by Dr. Henry Dwight Chapin. Its activities are now directed by Helen Foley Leighty, R.N.

* Fellow A.P.H.A.

An Additional Factor to be Considered in Calculating Automobile Fatality Rates*

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THE prevailing method for calculating mortality rates for deaths due to automobile accidents, as employed by the various public health agencies throughout the country generally, uses the total population as a basis. This may be a convenient method, but it is not entirely adequate, as can readily be seen by examining the ways in which the residents of a city contribute to traffic fatalities.

A city without motor cars could, obviously, have no motor fatalities. Naturally, it follows that cities with few motor cars, even though the population be very large, might have a few fatalities, and that the number of such deaths would increase as the number of motor cars traveling the streets increased.

On the other hand, motor cars could not inflict injuries upon pedestrians if the cities were depopulated. Consequently, we have two outstanding factors to deal with; namely, the number of motor cars as the prime factor, and population as the contributing factor. Thus it is apparent that computing death rates from automobile injuries on a population basis alone, without giving consideration to the number of motor cars in the city, may lead to incorrect conclusions.

We are forced to conclude that a method which ignores the number of motor cars, or a method which ignores the population, is inadequate.

It is really necessary, for accuracy, that both factors be included in the method of computing rates. This could be termed a car-population unit method. This name, in itself, implies that both the number of cars and the total population are taken into consideration. The rate, by this method, is determined by dividing the number of automobile deaths by the number of automobiles, times the population. This may be expressed by the equation $\frac{D}{CP}$ in which D represents number of deaths, C the number of cars, and P the population.

We have made up a table of the rates in the 13 largest cities, using the following two methods:

1. Rate per 100,000 population
2. Rate per 100 billion car-population unit

On this list, Milwaukee, Cleveland, and Los Angeles may serve as excellent illustrations.

By the prevailing method of computation, Milwaukee, in 1935, had the

* Read before the Vital Statistics Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 20, 1936.

TABLE I

Automobile Fatality Rates in 13 Large Cities

1935

No.	City	Estimated Population	Total Deaths	Death Rate per 100,000 Population	Total * Motor Cars (In thousands)	Death Rate per 100 Billion Car Population Unit	Position of City Based on Preceding Column
1.	Milwaukee	605,000	74	12.2	129	95	7
2.	New York	7,601,575	1,078	14.2	826	17	1
3.	Philadelphia	2,016,103	324	16.1	284	57	4
4.	Baltimore	841,264	138	16.4	142	116	9
5.	San Francisco	693,000	124	17.9	155	115	8
6.	Boston	798,568	161	20.2	105	192	11
7.	Detroit	1,568,662	339	21.6	385	56	3
8.	Chicago	3,490,700	780	22.3	451	50	2
9.	St. Louis	847,092	199	23.5	174	135	10
10.	Pittsburgh	685,800	179	26.1	113	231	13
11.	Buffalo	589,316	158	26.8	135	199	12
12.	Cleveland	929,200	249	26.8	292	92	6
13.	Los Angeles	1,295,629	454	35.0	451	78	5

* Passenger cars, trucks, buses, motorcycles (trailers excluded)

lowest automobile mortality rate, 12.2; Cleveland was 12th on the list with 26.8; and Los Angeles was 13th with 35.0.

In arriving at these rates, the number of motor cars in the 3 cities was, of course, not taken into consideration. The fact that Los Angeles had 3½ times, and Cleveland 2¼ times as many cars as Milwaukee, was ignored.

TABLE II

Automobile Fatality Rates in Chicago

1921–1935

Year	Estimated Population	Total Deaths	Death Rate per 100,000 Population	Total Motor Cars (In thousands)	Death Rate per 100 Billion Car Population Unit
1921	2,780,655	541	19.5	170	114
1922	2,833,288	626	22.1	210	105
1923	2,886,971	522	18.1	261	69
1924	2,939,605	489	16.6	308	54
1925	3,063,855	533	17.4	340	51
1926	3,128,964	592	18.9	370	51
1927	3,195,514	797	25.0	388	64
1928	3,262,448	887	27.2	416	65
1929	3,327,607	767	23.0	461	50
1930	3,392,700	843	24.8	465	53
1931	3,458,100	978	28.3	481	59
1932	3,523,400	878	24.9	450	77
1933	3,588,700	911	25.4	417	61
1934	3,490,700	1,003	28.7	418	96
1935	3,490,700	780	22.3	451	50

By employing the method just summed up in the formula $\frac{D}{CP}$ we arrive at the following results:

Milwaukee
95 per 100 billion car-population units
Cleveland
92 per 100 billion car-population units
Los Angeles
78 per 100 billion car-population units

It is evident that with two factors taken into consideration, the rates for the 3 cities are of about the same magnitude, with Los Angeles having the best standing instead of the worst.

The inadequacy of the prevailing method is even better illustrated in the computation of Chicago automobile fatality rates, as shown in Table II.

In 1921, there were 170,000 motor vehicles of all sorts in the streets of Chicago. Five hundred and forty-one persons lost their lives through automobile accidents, and the mortality rate was 19.5 per 100,000 population.

Five years later, in 1926, the number of cars increased to more than double, 118 per cent, and the population increased by 350,000. During that year, 592 persons were killed by automobiles, and the rate is given as 18.9, practically the same as in 1921. The fact that there were 370,000 automobiles in the streets, instead of 170,000, was not taken into account.

The car-population unit method of computation, by taking into consideration both the increased population and the increased number of cars, finds that, in 1921, the rate was 114 per 100 billion car-population unit, and in 1926, 51, instead of rates that are practically the same, when the prevailing method is employed.

In conclusion: (1) we feel that, by the method just outlined, a more accurate and fairer rate is arrived at, because of the fact that at least two contributing factors are taken into consideration, rather than one; (2) that by the new method, results of safety campaigns are more fairly evaluated than by the present-day method.

Hermann M. Biggs Lecture

IN memory of Dr. Hermann Michael Biggs, one meeting of the New York Academy of Medicine each year is devoted to the consideration of some public health problem. This lecture is given under the auspices of the Committee on Public Health Relations of the Academy and is open to the public. This year's lecture was given by Professor Henry C. Sherman of the Department of Chemistry of Columbia University, who spoke on "The Bearing of the Results of Recent Studies in Nutrition on Health and on Length of Life." The address was in the Academy of Medicine, April 1.

EDITORIAL SECTION

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ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE

ONE of the most interesting features of the *Annual Report of the Public Health Service* for 1936 concerns the administration by the Service under title VI of the Social Security Act, begun February 1, 1936. The grants-in-aid to the states have been $3,333,000, of which $2,451,140.79 has actually been paid to 51 states and territories according to the budgets submitted to the Surgeon General and approved by him. The remainder has been carried forward into the appropriation for 1937.

It will be remembered that the distribution to the states was based on (1) population, (2) special health problems, (3) economic need, and (4) training of public health personnel. The provisions put in the hands of our Public Health Service a large measure of control over state boards of health which has evidently been put to good use. We are told:

> . . . 19 states which did not already have such service set up central facilities for the promotion and supervision of local health administration; 33 state health departments strengthened their public health engineering forces; 11 added new units for the investigation and promotion of industrial hygiene; preventable disease control groups were materially strengthened in 24 states; in 27 states the laboratory facilities were augmented; 19 states made needed improvements to the personnel and equipment for vital statistics; public health nursing was strengthened either directly or indirectly in practically all the states; 11 states provided special measures for syphilis control and 13 for the control of tuberculosis.

Under item 2, Special health problems, we are told that emphasis has been laid on hookworm control, typhus, trachoma, psittacosis, cancer, mental hygiene, and rodent plague. In summary, the state health organizations have been strengthened in all but 5 states, and the local health services aided in all but 2.

It has been repeatedly said, and truly, that we know much more than we have been able to put into effect, and that if we applied the knowledge in our possession,

the incidence of contagious diseases especially would be tremendously lessened It is evident that putting knowledge into practical public health work should be in the hands of trained personnel—those having not only what might be called book knowledge of fundamentals, but trained in methods and administrative practices. One man with such training will get more public health out of a given sum of money than 10 others whose heads may be full of theories as well as facts, but lacking administrative ability and training.

In June, 1935, the State and Territorial Health Officers drafted a set of qualification standards for public health employees which was approved by the Surgeon General. For the specific purpose of giving technical training for doctors, nurses, engineers, etc., $416,666 was allotted for 5 months, on the basis of $1,000,000 a year. Eight training centers have been subsidized.

The need for trained personnel for public health work has been emphasized over many years. Our peculiar political set up has deterred many of those interested in public health from taking it up as a profession, since in none of our states is the principle of tenure of office recognized. Health positions which amount to anything are political plums. Officers who have held their places from one administration to another over any length of time can be counted on the fingers of one hand—no doubt because they possessed special qualifications not found in the average health worker. With the impetus and encouragement given by the Social Security Act, we cannot but believe that public health will become more popular in all the professions engaged in it, and we dare hope that within a very few years we will approach the stability found in England, for example.

The method of allocation of these funds to the states has had educational value for legislators, since 50 per cent of the sum allocated was made available through matching existing funds for public health work and 50 per cent by matching new appropriations from the state and local sources.

In looking over the list of states and their allotments, one is struck by the comparatively large amounts given to the southern states: Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. These allocations have been made chiefly under (2) Special health problems, and (3) Economic need, in which the per capita income of the state was taken into consideration.

Seventeen states have established industrial hygiene units in their departments of health. Before the passage of the Social Security Act, $37,788 was being spent for industrial hygiene activities, whereas in these 17 states the new budgets carry approximately $330,357. With the small expenditure of 14 mills per worker, this means that some 24 million gainful workers now have services available in this field by health agencies.

Great opportunities carry great responsibilities. The administration of this Act with the proportional tremendous increases in funds available for public health work have placed on our Public Health Service a great responsibility. That the Service has risen to this opportunity and responsibility is evident by the report before us, and we have no doubt that the careful supervision and good judgment shown in inaugurating the administration of this Act will be continued.*

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* It will be remembered that the report of the Public Health Service does not tell the whole story, as funds are available and have been distributed through other agencies—for example, the Children's Bureau.

THE MENACE OF AUTOMOBILE TRAILERS

A VERY small amount of travel over our automobile highways is needed to demonstrate that a new problem in public health has arisen—the automobile trailer.* During what may be called the migratory periods, spring and fall, one may pass on the highways in some parts of the country as many as 20 of these vehicles in a drive of 100 miles. There is certainly not a health officer of any state in the Union who has not come up against the problems of sanitation created by these automobile nomads. It is said that some live the year around in their trailers, going from one part of the country to the other. Some of these follow regular routes of travel, stopping for the night where night catches them. Some are operated from a center by individuals for fishing and hunting trips. Those trailers which follow the highways present the greatest health problem.

The matter has been well considered in *Public Health Reports*.[1] Health officers are concerned about the milk and water supplies used by the occupants of the trailers, some of which are equipped with ice chests for the preservation of these articles and foods. However, the health of these individuals is not much of a public health problem except for the necessity of disposing of their excreta, which constitutes at best a nuisance, and at worst a distinct menace to health. Many of the trailers are luxurious, and have toilet compartments with tight metal cans provided with chemicals which are said to disinfect the excreta thoroughly. However, with the constantly increasing number of trailers, and therefore passengers, it is manifestly impossible to allow these cans to be emptied and garbage thrown out along the highways or in the parks of our cities. It is reported that provisions are being made by a number of cities for the parking of these trailers in places provided with sanitary sewerage facilities.† The great majority of our states are looking after the water supplies, and it is reasonably safe to drink from such sources anywhere in the country. Safe water supplies are so marked by state boards of health. The Public Health Service points out the necessity of giving consideration to providing roadside facilities for the sanitary disposal of human waste and suggests that city and county departments of health could construct disposal systems near roads frequented by auto trailers.

It seems to us that there should be concerted action by the health officers of the states in the Union, especially those which carry the largest loads, as those leading from the North to the South, for, like tramps, a large proportion of this trailer population seeks the South in winter and the North in summer. Certainly in a country like ours, made up of such a large number of states, uniform regulations are most important.

The City and County of San Francisco, under Dr. J. C. Geiger, as Director of Health, has issued a *Sanitary Code for Automobile Trailers,* which contains many wise provisions and suggestions.

The tremendous popularity of this method of living and of traveling is suggested by the apparently authentic reports that a number of the large automobile companies are seriously considering the building of trailers as accessories to the car output. To the layman it seems curious that these well equipped companies

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* A recent survey by the American Municipal Association, the Society of Planning Officials, the American Public Welfare Association, and the National Association of Housing Officials indicates that there will be 400,000 automobile trailers in use in the summer of 1937, housing 1,250,000 persons.

† Miami, Florida, now has 13 licensed trailer camps, with a present population of 5,000 persons, which is expected to run to 7,000 later in the season.

would allow this business, already large, to be run by independents. Other problems have arisen which need concern us only indirectly. In one state the legal question had to be settled as to whether a trailer continuously occupied and remaining on one stand for a long time was a vehicle or a residence. If the latter, it fell under the city's jurisdiction and regulations. How long may a trailer stay in one place and still be a vehicle? However, our interest is in public health; the carrying of diseases from one part of the country by the passengers in these vehicles, which are under no sort of supervision at present, and the disposal of garbage and excreta along the roads and in camps and city parks, which to a great extent, lack adequate facilities for disposal.

REFERENCE

1. *Pub. Health Rep.*, Dec. 25, 1936, pp. 1791–1792.

AMERICAN PUBLIC HEALTH—A BRITISH APPRAISAL

THE system of public health administration in this country and its results frequently evoke comments from distinguished foreign observers. Sometimes enthusiastic, sometimes quizzical, these comments are always interesting and instructive, for it is useful to us to see things through the eyes of others.

In a recent issue of the *British Medical Journal*[1] there is an editorial entitled "American Public Health," which is based on facts given in a series of articles in that Journal by Professor R. M. F. Picken, a Welsh sanitarian who visited the United States under the auspices of the League of Nations, and made a survey of our public health activities.

This editorial points out that public health arrangements as conducted by our 48 sovereign states exhibit a chequered pattern,

> . . . altering from place to place and sometimes leaving the observer uncertain whether the variations noted are to be ascribed to actual differences in the health problems existing or to differing points of view of the governing bodies concerned.

The general practitioner is more effectively used in America than in England as the key man in public health, according to this editorial, which states, however, that relatively few of our medical health officers in cities and counties have had special training or possess qualifications in public health. There is also said to be considerable variation in the scope of existing courses of instruction for health officers, the educational value of which is unquestioned, but the vocational value of which may be doubtful. The teaching of preventive medicine in certain institutions, particularly Yale and Vanderbilt, is, nevertheless, worthy of emulation in the British medical schools.

Although much has been accomplished in the control of communicable diseases, as by widespread immunization against diphtheria, there has been no abatement in the prevalence of venereal disease in the United States, which confirms the view of many British administrators that the ethical and educational approach is the only way.

In addition to these matters, the editorial discusses the operation of our Social Security Act, mentions the tendency of American hospital construction to depart from the large ward system, and decries the use of persistent monthly letters to expectant mothers, which, it says, "need a light hand."

REFERENCE

1. American Public Health. Edit. *Brit. M. J.*, Oct. 31, 1936, p. 873.

Letter from Great Britain

THE UNLUCKY LONDONER

It is the publication recently here of a particular volume and the discussion that has taken place around it. coupled with some slight acquaintance with the press and literature of certain European countries very much in our news, that inspires me to remark that it is only under a democratic régime, such as operates in the United States and Great Britain, for example, where the bulk of the people are not too extravagantly nation-conscious, that it is open to writers often, or indeed ever, to throw wide the door of the skeleton cupboard and expose some of what they, at any rate, regard as the more inexcusably unpleasant contents. The volume referred to bears the title "Metropolitan Man." Modestly it proclaims itself an exposure of "needless deaths in English homes, of administrative chaos in English towns, and muddle in English business." London is dragged in because the metropolis and its "lure" are blamed as constituting "a grave and harmful factor in the life of the country." The main object of the author's quest, it appears, was to discover how happy Londoners really were, how fully they enjoyed the fruits of modern knowledge, and how true the legend of their prosperity. Obviously setting out upon his quest full of the belief that there was no happiness anywhere in any Londoner, it is not strange that he secured complete confirmation of his view. His own extreme unhappiness clearly also was intensified as a result of his quest. This one gathers from the manner in which he allows his passion to tower on account of the absence of a law requiring the universal wrapping of bread and the fineness of his scorn for town councillors because of their failure to meet the expectations of the provincial invaders and pave the streets with gold.

A FIGURE OR TWO

Much of the information with which authors of such volumes as *Metropolitan Man* fill their pages, eking it out with an exaggerating emphasis here and there and a multitude of florid phrases and threats to be actively sick or to succumb to a broken heart because such things are, come from official publications of one sort and another. Amongst them one that is very important, that must indeed be a perfect godsend both to those who wish to learn something of what is being done and of progress made and to such as would represent the metropolis as a glorified refuse heap, crawling with paupers and the acutely and chronically diseased is the so-called *Statistical Abstract for London*, published from time to time by the London County Council. The latest of these has reference to the period of 1926–1936 and, in regard to a number of matters affecting the public health, reveals that progress towards betterment in result or in provision has been made. The population of the Administrative County at 1935 was estimated at 4,185,000. This is just about half the population — over 8,000,000 — of Greater London, which heads the list of great cities so far as population is concerned, though the area covered is more than twice as great as that of New York, which comes next with just under 7,000,000. The total live births in 1935 numbered 55,780, the rate being 13.3. In 1925 there were 82,401

births, giving a rate of 17.9. The general death rate—11.4—for 1935 is 0.5 per 1,000 lower than that for 1925. Of special death rates, that showing the most marked decrease is the infant mortality rate, the 68 per 1,000 births of 1925 having become 58 per 1,000 in 1935. Deaths from tuberculosis of the respiratory system have fallen from 4,066 in 1926 to 2,847 in 1935, and the rate from 0.88 to 0.68. Deaths and death rates from heart disease as well as those from cancer have gone up. In 1935 the figures for heart disease were 13,067 and 3.12 as against 8,261 and 1.79 in 1926. The cancer figures were 6,720 and 1.46 in 1926 and in 1935, 7,091 and 1.69. Conditions showing interesting and, to an extent, perhaps, unexpectedly reduced rates are bronchitis and pneumonia, the former to 0.36 in 1935 from 0.79 in 1926, and the latter from 0.94 to 0.67.

SAFETY OF THE STREETS

Other disease and death figures that may be mentioned are those in relation to infectious disease, in regard to which it is shown that of cases admitted to hospital the totals for 1926 (30,403) and for 1935 (30,664) are very similar. How very marked a change has taken place in relation to street safety is revealed in a table setting out the number of deaths and accidents year by year and the type of vehicle involved. The total for injuries and deaths in 1925 was 41,079 (killed 853) and in 1935, 56,555 (1,109 killed). As to type of vehicle the figures show an increase in the number of private cars concerned from 13,895 in 1926 to 18,347 in 1935. Having regard to what appears to be a comparative scarcity of such vehicles on London streets, it is a little surprising to learn that in 1935 accidents in which pedal cycles were involved were almost exactly twice as numerous as in 1925—16,777 as against 8,313. Motor cycle accidents, that numbered 8,726 in 1926, gave 6,618 in 1935.

As indicating the extraordinary variety of records kept in the metropolis and that have been drawn upon in preparing this abstract, I find on one page, in addition to tables showing the number of units of electricity generated and sold by municipal and company undertakings, others setting out the number of aliens, and the extent of the work done year by year by local authorities, the county council, housing trusts, and private enterprise with a view to solving the housing problem. Elsewhere there are figures relating to unemployment in particular trades; the average daily supply of water derived from the Thames and other sources (in 1935, 277,395 million gallons) and the average daily supply per head of the population (36.5 gallons); the number of vessels arriving at and departing from the Port of London, and the revenue (£5,718,524) and expenditure (£5,714,794) in 1934–1935 of the Port of London Authority.

THE MONEY SIDE

Of figures relating to rates and rating, incomings and outgoings, there are, of course, many. In 1934–1935, it seems, the total aggregate expenditure by the County Council on the various works and duties in which they are concerned was £154,272,153. In addition, of course, there were expenditures by the various local authorities — city and borough councils—numbering in all 28, amounting in a number of cases to over a million pounds sterling. The total amount expended, therefore, would probably be not far short of £200,000,000. Towards this the total amount collected in the form of rates is between 28 and 29 million pounds sterling. The services upon which the largest sums were expended were education (about 26 millions) and housing (about 44

millions). Towards public assistance the amount expended was over 2½ millions sterling. In relation to public assistance a great variety of work is done in institutions, as domiciliary relief, on behalf of casuals, and so on, the total for whom provision was made and given relief per 1,000 of the population in 1936 being 30.9. This figure is mentioned because it is one with which much play is made by the writers of books of the type of *Metropolitan Man,* regarding it apparently as an added reason for counting civilization as a failure and quite overlooking the possibility of accepting it as an indication that there exists and is in operation in the metropolis a very complete and active organization for succoring the poor, who, it appears, must be always with us. Most of the statistical and other matter contained in the abstract, though it may interest a wider audience, is intended mainly for the instruction and guidance of those of us here who may be interested and curious. It is because of this and because I fear I may have bored you with the quotations I have made that I feel I must offer an apology.

GENERAL AND SPECIAL HOSPITALS IN LONDON

Another interesting report, relating to work done in the metropolis, issued by the London County Council is that of Sir Frederick Menzies, the County Medical Officer of Health and School Medical Officer, on general and special hospitals. In the general hospitals division there are 43 hospitals and institutions, containing a total bed accommodation of 25,664. One of these hospitals is for ophthalmia neonatorum and young children suffering from congenital syphilis and valvo-vaginitis. In another there has been established the British Post-Graduate Medical School, which is attracting students not only from overseas Britain but, to use an expression coined by the late King George V, "from regions even more widely spread." Included amongst those who joined almost immediately after the school opened were five students from the United States. Actually it is not only at this particular hospital that medical teaching is done. Sir Frederick Menzies, in fact, has shown himself greatly concerned to see that the fullest possible use is made of the vast amount of valuable clinical material in the hospitals. Now, as a a result of his efforts and influence, the London County Council have agreed to permit of instruction being given to medical students, undergraduate, and others, in some sixteen of the general hospitals and to permit of their affiliation to the voluntary hospital medical schools in the metropolis. In the special hospitals also, more particularly those provided for infectious diseases, of which there are sixteen, medical students receive the training in fevers which forms part of the curriculum they are compelled to follow. In the special hospitals division there are in all 31 hospitals, containing 14,386 beds. Included amongst the institutions, in addition to the 16 fever hospitals already mentioned, there is one for women and girls suffering from venereal disease, ten for tuberculosis (six for adults and four for children), while four are exclusively children's hospitals. The numbers dealt with in the general hospitals, as may be imagined, are considerable. Actually during 1935, 170,076 patients were admitted, and amongst other happenings it is recorded that 14,915 births took place. Several of the hospitals are rather old buildings but as a result largely of the initiative and enthusism displayed by Sir Frederick Menzies improvements are being made and a very high standard is being reached.

INSTRUCTION IN VENEREAL DISEASES

The admissions to the fever hospitals during 1935 numbered 30,664, though the year was generally one of low incidence of infectious disease. London fever hospitals have always been notable on account of the amount of more or less original research work done by the medical staffs on the material at their disposal. In 1935, amongst other publications and reports made, were one on "Carriers and Return Cases in Scarlet Fever," on "Whooping Cough," and on the "Nomenclature of Diphtheritic Infections." The admissions to the venereal diseases hospital of the County Council in 1935 numbered 387, 369 being adults and 18 infants. Further, 128 infants were born alive and 8 stillborn in the hospital. In this institution, as elsewhere, use is made of the material for teaching purposes and note is made of the fact that during the year lecture demonstrations were given to health visitor pupils, to members of a congress of inspectors of midwives, and to a party of industrial nurses. In addition to reporting with regard to hospitals and the multitude of interesting and important matters arising in connection with their conduct and operation, Sir Frederick deals also with other services provided by the Council, such as laboratories and ambulances. As with other figures submitted, it is possible to regard those relating to hospitals and the associated facilities from more angles than one. Perhaps, however, the most reasonable is that that permits of the acceptance of the view that on the part of the authorities in the metropolis there is a real and growing anxiety to meet the needs of London's sick in as large a degree as possible; and that while it may be a misfortune, or even to a certain small extent worse than a misfortune, that there are so many in need, it is a fortunate and wonderful thing that the provision for meeting it is so great. CHARLES PORTER, M.D.

LETTER TO THE EDITOR

TO THE EDITOR:

THE paper "An Additional Factor to be Considered in Calculating Automobile Fatality Rates" (Porsche and Stein) has come to my attention as a possible means of correcting the usual methods of computation for an important additional factor, namely, the number of motor vehicles, in the determination of a motor vehicle fatality rate. The usual methods of computation employ either a population, a gasoline consumption, or a vehicle registration basis. It is true, however, that motor vehicle fatalities may tend to vary with other such important factors as density of population, street mileage, and traffic of non-registered automobiles. The fundamental intention of the authors is defensible. However, there are two valid criticisms of the proposed plan in its present form.

First, while there is some logical basis for injecting an additional factor into the usual method of rate computation, a considerable amount of research by our engineering staff, as well as our statistical bureau, has revealed that, while motor vehicle fatalities may vary with any one of numerous factors, there is as yet no proof that motor vehicle fatalities tend to vary in accordance with the product of any two of these factors.

The second criticism of the method proposed deals with a fundamental statistical fallacy in the formula as now presented by the authors. According to this proposed plan the rate is computed from a fraction, in which motor vehicle fatalities are the numerator and the product of population and cars registered is the denominator. This formula has the effect of producing a fatality rate inversely proportional to the size of the city. I have made a test of the data from various cities and find that, as would be expected, the formula tends to rate the cities in order of size. The formula yields the following rather surprising results:

	Rate
A hypothetical city of 5,000	16,700
Evanston, Ill.	175
Wichita, Kans.	670
Chicago, Ill.	48
New York, N. Y.	18

Evanston, a city which has made an admirable safety record, has a motor vehicle fatality rate by this method which is approximately 4 times as large as that of Chicago. No informed person believes that this relationship really expresses the difference in traffic accident hazards between the two cities.

The statistical source of error in the formula is easily corrected by using as the denominator the geometric mean between the motor vehicle registration and the population or, in other words, the square root of the product of these two factors. Since there is logic supporting this method of computation, the formula, when statistically correct, may have some merit.

Since the National Safety Council is interested in every effort to reduce motor vehicle fatalities, we hope that further comments will be made on this or any other plan of computing more equitable motor vehicle fatality rates.

R. L. FORNEY,
Statistician,
National Safety Council

PUBLIC HEALTH EDUCATION*

Round Tables in New York City—During the season round tables on technics are held nearly every week by the New York Social Work Publicity Council. March and April included such topics as annual meetings, annual reports, mimeographing, words (to use and not to use), and discussion methods. Anyone planning a trip to New York will receive copy of the announcement by writing to editor of this department.

Members of the Social Work Publicity Council (130 E. 22d St., New York, N. Y.) who live or work in New Jersey, New York, or Connecticut will receive the monthly announcements automatically.

Health Tabloids — The special health edition season is at hand. First to arrive is the 40 page tabloid magazine, *Health,* of the *Sunday Register,* New Haven, Conn. Sunday, Feb. 28, 1937.

Yale faculty members, and state and local department staff members supplied most of the articles. Also present were Dr. Peter, Dr. Parran, and Dr. Craster. The Health Section was prepared under the editorial supervision of the public information assistant of the New Haven Health Department, Medical Material was approved by the City Medical Society Committee, and advertising was subject to approval by the secretary of the State Medical Society.

Without questioning the desirability of these special editions, we wish that in one city at least there could be a thorough-going, carefully planned study of what articles are read by those who buy the special edition. It would not be an easy job to handle.

The Day of the Week Please—It's a minute detail. Yet this detail does make it easier for those who receive your committee notices, and announcements of other meetings or events. Then the receivers don't need to hunt a calendar when looking at your notice away from their desks, or when it is received at their homes.

A Good Letter—Many letters asking for information and service fail to tell what is needed when writing an answer. Almost a model letter for one type of inquiry is that sent to national health agencies by Eva Moore Adams, supervisor, Health Education, Mississippi State Board of Health. It states clearly how the information will be used, who will get it, and their need, all given in straightforward fashion without any plea for special consideration. Here is the letter:

> The Division of Health Education in Mississippi is compiling a bibliography of material that will be suggestive and instructive to school teachers throughout the state. Our budget does not permit us to purchase health material to put into their hands; and the average teacher's salary here is so low that we do not feel justified in listing expensive literature. At the same time, our health problems in Mississippi are so acute and there is such a dearth of available health material that we feel it one of our most important tasks to review the publications in the field and make pertinent recommendations.
>
> Could you send us samples of any publications of your organization which our teachers

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

might find useful and within their means, and which they might procure from you at any time? They would be interested in pamphlets for their own use, for their pupils' information; in posters, and other simple, graphic material.

We shall appreciate a copy of your catalogue or bibliography and any material or suggestions you may give us.

Scholarships Available — Quick action will be necessary because May 15 is the latest date for filing applications for scholarship in health education at Massachusetts Institute of Technology.

Nurses will apply to National Organization for Public Health Nursing, teachers to National Tuberculosis Association, both at 50 W. 50th St., New York, N. Y.

From Republica de Colombia—It is exciting to run through a package of publications from the National Department of Health, Bogota, Colombia.

Salud y Sanidad is a popular health monthly with simple sketches and frequent cover pages in color, obviously adapted to local conditions. A striking page in red, blue, and black shows the progress of hookworm up through the human body from the foot, the point of *penetracion*. *Revista de Higiene* is the professional organ of the department.

Public Health Data for Parliament—A "Parliamentary Manual of Public Health" is being issued by Health League of Canada, 105 Bond St., Toronto, Ontario.

The *Manual* is a series of vertical file folders in each of which is fastened mimeographed material on the subject indicated on the tab of the folder. These are supplied to members of the Senate and the House of Commons, and may be sent to provincial legislators.

Each section is to provide easily accessible information on a health topic which may come up for discussion before Parliament.

The section on "Health—Diphtheria," 10 pages, presents: extent of the problem, seriousness of the problem, actual results of toxoid, health education needed, and what should be done.

As Seen by a Reporter—"A Reporter Visits the Springfield Clinic" is a part of an illustrated full-page feature article in *Springfield (Mass.) Sunday Union and Republican*. Jan. 24, 1937. Good to encourage visits to a clinic for treatment of syphilis.

"Leaves of Fig" is part of a *Boston Sunday Globe* column which discusses "the difference between awareness of sex and dirty-mindedness."

In *Bulletin*, Massachusetts Society for Social Hygiene, Little Bldg., Boston.

"Is Milk Cancer's Ally?"—From *Journal of American Medical Assn.*, March 13, 1937:

In an editorial a few weeks ago the *Journal* condemned the editors of *Esquire* and *Coronet* for printing articles in the medical field without scientific background. Their ignorance in accepting and publishing such articles as they have published on the glands and on autotherapy was a sort of unfortunate, supercilious or silly ignorance. Now in the March issue of *Coronet* they lead off with an article entitled "Is Milk Cancer's Ally?" that betrays such a broad and comprehensive ignorance of milk and of cancer that one is stimulated to wonder as to the mental age of both editors and author of this publication. Here is the old argument that modern civilized man died of cancer but the American Indian did not die of cancer. The answer is of course that modern civilized man has a life expectancy of some 60 years at birth whereas the life expectancy of the Indians was about 20 years at birth. The Indians simply did not live long enough to die of cancer. More than 90 per cent of deaths from cancer occur in persons over 40 years of age. The Indians died of infectious diseases, exposure and other Indians. The same argument has been made with relation to the eating of

white bread versus the eating of whole grain. It might just as well be made with relation to automobiles. The Indians had no automobiles; hence the Indians did not die of cancer. Some preposterous arguments are made to show that cancer rates are higher in the states using the most milk. It may easily be shown that life expectancy is longer in the states using most milk because of better nourishment in those states. In some small type at the end of its article *Coronet* affirms its seriousness in presenting this article; this affirmation adds insult to injury. There is evidence that the article has already produced fear in the minds of some readers who do not stop to remember that neither the author of the article nor the magazine that prints it has the slightest scientific standing.

A Double Writing Contest—A writing contest for nurses, and one for laymen:

Topic for Laymen: What benefits can my community derive from the N.O.P.H.N.?

Topic for Public Health Nurses: What the N.O.P.H.N. means to me as a public health nurse.

Who is eligible to compete? Anyone except members of the present N.O.P.H.N. staff and Board of Directors!

Length of article: 1,000 words or less.

Date due: July 1, 1937.

Award: Life membership in the N.O.P.H.N. to be announced at the A.P.H.A. and N.O.P.H.N. meeting in October, 1937.

Send your articles to the National Organization for Public Health Nursing, 50 West 50th St., New York, N. Y.

Replace Misinformation and Superstition — Under "Coöperative Health Work," Dr. C. C. Applewhite of U. S. Public Health Service, says:

The success of public health work depends largely upon the character of the educational program executed. It is often necessary to replace misinformation and superstition with correct information. A successful education program does not merely impart correct information but implants or creates a desire among the people to make practical application of the information thus obtained. The old order in public health with its superstitions, false theories, shotgun quarantines, and fumigation must give way to the new public health which depends for its complete fruition upon scientific data, common sense, and an enlightened public opinion. By all the known methods of imparting information to the general public, effort should be made to teach the people the essential principles involved in disease prevention and health promotion.

In *Illinois Health Messenger*, Springfield, Ill., March 15, 1937.

Health Education South—Health education is represented in *Transactions of the Fifth Annual Meeting, Southern Branch, A.P.H.A.*, published by A.P.H.A. at $1.00 a copy.

Under "Poliomyelitis in Alabama During 1936":

Full and complete information concerning the epidemic and the incidence of cases was immediately made available to the general public and the people were informed daily as to the progress of the outbreak. The coöperation of the newspapers and press agencies proved invaluable in the dissemination of authoritative knowledge.

In "Screening as a Part of Malaria Control" is a quotation from National Malaria Committee report, including the following:

To revise educational material in order to bring it to the plane of all classes.

To promote public education on malaria.

"Activities of a County Health Department for One Year," includes a column on health education.

"Education of Public Health Nurses," by H. S. Mustard, M.D.

"Development of a Staff Education Program" (nursing) by J. L. Daniel.

Health Education in Normal Schools—Programs for student-teachers in normal schools and colleges are being conducted by New York State Department of Health.

Conducted with the coöperation of the Health and Physical Education Division of the State Education Department, these programs are intended to give future teachers a

thorough foundation in disease prevention and the rules of healthful living which can be passed on to boys and girls in their future classes, and to make health education basic to all education from the three R's to the advanced subjects taught in colleges and universities.

Demonstrations of three motion picture films on tuberculosis and accident prevention and a social hygiene talking slide film, with an explanatory talk by the department's representative, drew enthusiastic comment from many of the 550 members of the student body and faculty (at the first of these programs), most of whom had not known the extent of the department's facilities for assisting in health instruction. . . .

A large supply of social hygiene material was requested for use by students as well as samples of other printed material for reference in the school library. The social hygiene literature is to be used in connection with a detailed study of syphilis, its control and prevention.

"Modern Health Advertising"—Under this heading *Nassau Medical News* (March, 1937) recalls in a page statement that back in 1929 that publication had urged advertising health information.

We must dress up our package, revise our publicity copy and employ more attractive advertising media. If we do this we need have no concern about the competition of the cultists, the faddists, or the uplifters. Ours is a legitimate product and if properly marketed will bring its own price.

The statement further comments on the recent coöperation of *Time, Life, Fortune,* and the March of Time news picture in spreading cancer information.

Published by Medical Society of County of Nassau, 1527 Franklin Ave., Mineola, N. Y.

"His Audience is His Orchestra"—"The public lecture, which has been such an important . . . factor in the intellectual life of America" is reviewed briefly in *Saturday Review of Literature,* 25 W. 45th St., New York, N. Y. March 3, 1934. *10 cents.*

The "lecture," or as we more often call it, the "talk," has a large place in the field of health education. This recognition of it as the chief means of adult teaching should encourage public health education to make much more of it—to develop the art of combining entertainment with instruction which has made the popular lecture platform an attraction to that part of the population which "is on the up grade intellectually."

Health Education Outlined: Part Two—This is a continuation of the article on adult or popular health education, by Raymond S. Patterson, which appears in the 1937 edition of *Social Work Year Book,* edited by Russell H. Kurtz (Russell Sage Foundation, 130 E. 22d St., New York, N. Y. $4.00).

Publicity Media. Newspapers have long been an avenue of valuable health publicity. The tactful health educator who has had the confidence of the editors of his community has been able to obtain space for articles having only a modicum of news value. Spokesmen for the publishers have claimed, with some justice, that newspapers have been more than generous in this regard. There has, however, been one notable exception to this coöperative attitude in the past of the press: most editors have balked at publishing articles about venereal diseases. This reticence was partially broken down by the publication in the Chicago *Tribune* in late 1935, and in the New York *Daily News* early in 1936, of extensively read series of articles on the venereal diseases, written by the papers' own staffs rather than by health officials. These somewhat lurid series have been followed by similar articles in other papers. *See* Social Hygiene.

Evaluation and Training. The greatest present-day needs in health education are (a) better means of determining the effectiveness of the methods used and (b) more skillful personnel. Ways of measuring the effect of educational projects have not as yet been perfected. Yards of news stories printed, thousands of books distributed, miles of film shown, mean little in terms of human behavior. Pioneering attempts have been made to measure the effect of education upon habits, attitudes, and knowledge, but they have been sporadic and none too convincing. It can

only be reported here that serious thought is being given by students of health education to this problem—a fact that is in itself worthy of note.

Health education needs a more highly trained and skillful personnel. As in all fields of human endeavor, the pioneers have had to accomplish results by the expensive method of trial and error. Much of the pioneering in health education is completed, and the continuing program calls for administration by persons trained in the psychology of human behavior and grounded in the pedagogical arts. Only recently have courses in health education been offered by leading universities. That such courses are sought after by students is a wholesome sign. Another evidence of the realization of the need for adequate training of health educators is that manuals of instruction in this subject are now in the process of preparation.

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Health Education in March, 1937, Journal—The items below have to do with health education.

"An Editor's 'Heart to Heart' Talk" (page 269) emphasizes again the possibility of saying as much or more in fewer words.

"The British Medical Journal" (pages 271–272) is for publishers, editors, and writers of health material.

In "Books and Reports" see "Wunder des Lebens" (page 295); "The Teaching of Physical Education" (page 296); "The Public Opinion Quarterly" (page 297); "A Health Education Workbook" (page 297); "Handbook of Health Education" (page 299).

"Conferences and Dates" (pages 310–311).

In the Supplement, "American Public Health Association Year Book," will be found lists of committees, including various Association committees on which the Section is represented; Public Health Education Section Council (page 13); and committees of the Section (page 27).

"Committee on American Museum of Hygiene" (pages 38–40).

"Methods in Health Education" (pages 147–148).

Numerous reports contain background material for those who speak or write, or supply information for use by others.

The Health Officer, March, 1937—*The Health Officer*, published by U. S. Public Health Service, Washington, D. C., contains much material not related to health education. We record

here only certain of the health education titles.

The Press Speaks on Social Hygiene (A three page article made up out of newspaper editorial comment on National Social Hygiene Day. An effective device) . . . The American Association of School Physicians . . . Methods in Health Education . . . News Briefs (includes several health education paragraphs).

"Alcohol and Health," a summary from authoritative sources, closes with this paragraph pointing to the significance of the article:

While the opinions and experimental evidence presented above cannot be said to give complete knowledge as to *all* the physiological effects of alcohol upon the human system, nevertheless, it is believed that they do sum up the important points about which the laity most frequently questions the public health worker.

"Methods in Health Education" is a broad review of ideas and activities which in the course of time may develop into "orderly arranged and established systems of teaching health." Considered are adult health education, child health education, value of health education. The author, John W. Knutson, D.D.S., even has a kind word for "propaganda" which was so severely treated in an earlier issue of *The Health Officer*.

Real Life Health Story Broadcast—Quick action in the use of current material is described in *Health News*, New York State Dept. of Health (April 5, 1937):

A true public health story as stirring as a tale from the pages of fiction was enacted on March 19 as a special feature of the Health Hunters Series of weekly health plays written, acted, and produced by members of the staff of the New York State Department of Health.

A dramatization of the real story of how a physician mustered the weapons of modern medical science in a successful fight against pneumonia in a remote part of the Catskills, the play was on the air only 60 hours after the events it recorded had taken place. In a series of scenes in which a blizzard-swept homestead in the mountains, a physician, and a young man stricken with Type V pneumonia play the leading rôles, it tells in as exact detail as possible how serum for that type of infection was brought within a few hours from New York City through the coöperation of the Willard Parker Hospital, state troopers, the New York City Police, railroad authorities, and others. It illustrates the results that may be expected in the treatment of pneumonia when the disease is diagnosed early and found to be of a type for which serum can be obtained and administered promptly.

This play will be reproduced by electrical transcription over a network of 18 radio stations throughout the state.

Hygeia, April, 1937—Articles in the April issue of *Hygeia*, 535 N. Dearborn St., Chicago, Ill. *25 cents*.

Tuberculosis—down but not out (with a graphic case history covering 5 generations) . . . Growing old gracefully . . . How to reduce . . . Poor circulation . . . Trustees of posterity (young people and tuberculosis) . . . Anemia . . . Tooth bleaching quackery . . . Nature's G-men: insects . . . Walking and cycling . . . Cattle's contribution to mankind . . . Curious stories about health . . . Soft diets that satisfy . . . A million forgotten children (speech cripples) . . . The doctor abroad—Holland . . . Kidney stones . . . Kiyoshi Shiga . . . More about heart disease . . . Health pictures . . . Radio announcements . . . New books on health . . . Questions and answers.

In "School and Health":

More on understanding the adolescent . . . Is the overweight child getting a square deal? . . . How the school nurse and teacher may work together . . . Is your playground safe?

Health Movies Catalogued Again—A classified list of 1175 non-theatrical films has been issued as "Educational Film Catalogue," published by H. W. Wilson Company, 960 University Ave., New York, N. Y. 134 pages. $2.00; with 4 quarterly supplements, $4.00.

The listed pictures were selected primarily for classroom use, but many

or most of them will be equally satisfactory for other audiences.

Health pictures are listed under such headings, as: hygiene; public health; children; infants; women; food; dietetics; cleanliness; sex education; public health; safety. There are headings for: bacteriology; diseases of respiratory system; tuberculosis; and so on.

The selections come largely from accepted sources; only one or two seem to be from advertisers, and any such have been approved by teachers. The listing is quite detailed, and should be found up to the well known standard of accuracy of the Wilson Company.

Be sure to send them information about new pictures, or pictures omitted from this first edition of the *Catalogue*.

Do Exhibits Pay at Meetings?—Do exhibits at annual meetings or other local gatherings repay the effort to get them in shape?

National health agencies receive requests for "an exhibit" to be shown at a meeting. Local workers may put in a lot of effort to assemble exhibits, or to construct them.

Here are some questions to be answered before deciding to have exhibits:

Will the audience arrive early enough to have time to look at the exhibits before the meeting?

Or, will people really stay after the meeting to look over the exhibits?

If it is an all day session will there be time between sessions, or will sessions run so close that the rush from one meeting to another will give no chance for leisurely examination of displays?

Then will the exhibits be off at one side, even in a different room, where they may be overlooked?

Why? And Why Not?—Why write or print "MEMORANDUM" at the top of a sheet on which a memorandum is written?

Or, why not write or print "LETTER" at the top of a letter, or "BOOK" on the title page of a book, or . . . ?

DATES AHEAD

In April issue mention was made of Mother's Day, National Hospital Day, Birthday of Florence Nightingale, and Birth of American Red Cross.

Timely in June will be tie-ups with commencement, weddings, camping, gardening, children's day in churches, end of school.

June 7: Founding of National Organization for Public Health Nursing
June 14: Flag Day
June 14: Shut-In Day
June 20: Fathers' Day. We seem to be far behind English workers in placing upon fathers a share of responsibility for care of the mother and young child.
June 21: Beginning of Summer.

Possible angles for handling some of the above dates will be found in *Almanac Notebook* and *News Almanac for Social Work*. Community Chests and Councils, 155 E. 44th St., New York, N. Y. *60 cents.*

FOR EDUCATION OR REFERENCE

Another specimen of the New Deal in government publications is "Homes for Workers," a 94 page pamphlet issued by PWA Housing Division. Superintendent of Documents, Washington, D. C. *15 cents.* Unusual and effective cover pages, with use of photographs, to be seen and not described. Text answers a series of 16 questions about low cost housing. The bibliography is helpfully annotated.

"Cook Pork and Its Products Thoroughly" is an anti-trichinosis leaflet. Bureau of Animal Industry, Washington, D. C. *Free.* You might ask also for copy of the mimeographed press release for your use.

"Courses in Public Health Nursing for Graduate Nurses." Brief descriptions of approved courses. National Organization for Public Health Nursing, 50 W. 50th St., New York, N. Y. Enclose *3 cents* postage.

"Health Syllabus" has been issued by Mississippi State Board of Health, Jackson, in response to the repeated calls made by school teachers for health material for classroom use. Its 80 pages include much useful material, but it would be less confusing to use if it had been organized in relation to a table of contents. It would be more helpful if it had less of the appearance of a scrapbook.

"Proceedings of Conference on Venereal Disease Control Work, Washington, D. C., Dec. 28–30, 1936." Superintendent of Documents, Washington, D. C. 160 pp. *15 cents.*

"Public Health Service Publications Issued January–June, 1936." U. S. Public Health Service, Washington, D. C. *Free.* About 50 titles are listed, most of them on technical topics.

"Questions and Answers about Community Chests and Councils of Social Agencies." Community Chests & Councils, 155 East 44th St., New York, N. Y. 27 pages. *25 cents.* "What people most want to know, as shown by letters and personal inquiries."

"Resources for the Care of the Tuberculous Available to Residents of Brooklyn." Brooklyn Tuberculosis and Health Assn., 293 Schermerhorn St., Brooklyn, N. Y. A mimeographed directory; 20 pages; heavy marbled cover sheets. Samples, *10 cents.*

"We Do Not Want Security," by F. S. Winslow, M.D. Reprint. Medical Society of State of New York, 2 E. 103d St., New York, N. Y. *Free.* The doctor must be insecure so that he will do his best for the patient.

"WPA and Negro Health" is a review of varied WPA activities. National Negro Health Week, U. S. Public Health Service, Washington, D. C. *Free.*

From American Medical Assn., 535 N. Dearborn St., Chicago, Ill.:

"Are You a Nervous Dyspeptic?" by E. A. Cameron. Reprint. *5 cents.*

"Contagious Disease Control" (in schools), by H. B. Wood and W. W. Bauer. Reprint. *10 cents.*

"The Rules of the Game," by J. F. Williams. Reprint in small size page, heavy paper, illustrated. *10 cents.* Rules: outdoor air, wholesome food in proper amounts, intelligent care of the body, rest and sleep, thinking straight, exercise.

From the Metropolitan Life Insurance Co., 1 Madison Ave., New York, N. Y. (free):

"Studies in Diabetes Mellitus," one on Etiology, and one on Heredity, both reprints by Joslin, Dublin, and Marks.

"Mortality from Cardiovascular-Renal Diseases" (including 13 charts shown at professional meetings).

MAGAZINE ARTICLES

More and better articles are likely to appear in magazines as a result of letters from readers.

"Allergic Addicts: But If You Don't Like Mother-in-Law You're Psychoallergic." The widening knowledge as to allergy. *Literary Digest,* 354 4th Ave., New York, N. Y. March 20, 1937. *10 cents.*

"The Health of the Nation," by E. V. Lape, *Atlantic Monthly,* 8 Arlington St., Boston, Mass. April, 1937. *40 cents.* Interpretation of American Foundation Studies in Government.

"Human Eye is Happiest Invention: Science Aids in Bringing Optics to Perfection Peak." *Literary Digest.* April 3, 1937. *10 cents.* 3 pages with illustrations.

Look, the picture monthly, May, 1937, gives two pages to mud, sand, and steam baths; a surgical picture (removal of a cataract); and a new teaching manikin of the head, showing

muscles and veins. 715 Locust St., Des Moines, Iowa. *10 cents.*

"So You're Going to Have a Baby," by H. Washburn (a whale of a different book from one health department pamphlet of prenatal information which opened with a page on high mortality of infants); "A Woman Surgeon," by Rosalie S. Morton, M.D., pioneer woman surgeon; "Idols and Invalids," by Dr. James Kemble (post-mortems of famous great via contemporary records). These and other books condensed in *Book Digest,* 350 E. 22d St., Chicago, Ill. March, 1937. *25 cents.*

"Turn on the Light," by J. D. Ratcliff. *Collier's.* Jan. 23, 1937. Ultraviolet ray in the hospital, the packing plant, and elsewhere.

NEW

Helps is a new, occasional bulletin issued by Maternity Center Assn., 1 E. 57th St., New York, N. Y. "For local groups interested in promoting better maternity in the United States." *Free.* The March 1, 1937, issue gives in considerable detail the methods of the Maternal Welfare Committee, Onondaga Medical Society, Syracuse, N. Y., and coöperating organizations, both professional and laymen.

REPORTS

The annual report of Massachusetts Society for Mental Hygiene, 3 Joy St., Boston, Mass., is one of small sized, readable looking reports. A full page diagram shows the activities of the Society. Another page is given to a list of past bequests and a form for new bequests.

The 1936 *Annual Report* of Commonwealth Fund, 41 E. 57th St., New York, N. Y. is notable for two "Sketches from the Field": "Obstetrics at the Crossroads," and "The Anglos Go Nursing." The first, a description of extension teaching in medical practice, the second, an account of visiting nursing in New Mexico. There is a table of contents.

The annual report of the Superintendent of Health, Providence, R. I., has a table of contents. Seemingly there are no reported health education activities.

The biennial report of Tennessee Dept. of Public Health (1933–1935) gives three pages to adult health education, and seven pages to the blue ribbon work among the school children. There is a table of contents.

"An Oasis of Health" is the cover title of the annual report of Judson Health Center, 237 Thompson St., New York, N. Y. The title on the upper part, with "Judson Health Center" near the foot of the attractive cover, make an effective combination. The full page photographs illustrate how it is no longer necessary to use smooth paper for half tones. There is a table of contents.

The customary attractive looking mimeographed report from Middletown, N. Y., has a page pie diagram of the budget dollar of Middletown showing 1½ cents for health. A boy and his dog sketched in a corner, the boy saying, "A penny an' a half don't buy a very big piece of pie, does it, Spot?"

"Three Years of Health Progress in New Haven" carries the Dept. of Health reports for 3 years. There is a table of contents which indicates a page devoted to public health education.

"For Better Health" is the annual report of the Minnesota Public Health Assn., 11 W. Summit Ave., St. Paul, Minn. It has 14 leaves (10½ by 8½ inches), 56 pages (5¼ by 8½ inches). The whole is thus folded twice to make a pamphlet 5¼ by 8½ inches. A four-page spread records 30 years of tuberculosis and Christmas seal history. For each year a paragraph, cut of that year's seal at the left, a red bar above

showing tuberculosis deaths per 100,000 population. Four pages are given to general health education and four pages to coöperation with other agencies (Minnesota State Medical Assn., Women's Auxiliary of State Medical, A.M.A., Minnesota 4-H Clubs, Minnesota Dept. of Health, Minnesota State Board of Control, Minnesota State Dept. of Education, Minnesota Education Assn., Minnesota Congress of Parents and Teachers, Minnesota Federation of Women's Clubs, Minnesota Editorial Assn., American Legion Auxiliary, Minnesota Safety Council, Minnesota State Conference of Social Work).

Here are the introductory paragraphs of the annual report presented at the annual meeting of the Illinois Society for Prevention of Blindness, Chicago:

> In the lower right hand drawer of my desk at the Illinois Society, there is a folder marked "Annual Meeting," and into it, day by day throughout the year, are dropped scraps of information, reports, statistics and stories that reflect our work.
>
> At the end of 365 busy, happy, exciting, frustrating or discouraging days, for any good organization experiences the whole gamut of them in a year, that folder looks like a last year's bird's nest.
>
> On the 366th day it is my job to take that hopeless looking bunch of scraps and break it up and boil it down into something that will capture on paper, *not just figures* but our anxiety when we have raced in the teeth of a high March wind to an ophthalmia case 70 miles away, our exhaustion when we have treated 100 trachoma patients in a morning with the temperature at 104—our elation the day a sight-saving class is opened in a downstate community in early autumn.

REPORTING

"Annual Report: 1936." New York Diabetes Assn., 386 4th Ave., New York, N. Y. A picture of a new type of health agency as conducted in a large city.

A child's portrait in color, and "Let's See!" make up the cover of the 1936 annual report of the National Society for Prevention of Blindness, 50 W. 50th St., New York, N. Y. Maps of uniform style and size each show the geographical extent of a service rendered: field visits, film showings, etc.

Palama Settlement's Dental Clinic, Honolulu, Hawaii, reports for 1936: A photograph covers all of the two cover pages except a band of light brown which carries the institution name. Inside there are 4 full page photographs in a total of 28 pages.

Los Angeles County, Pasadena, and Racine, Wis., issue extensive mimeographed reports. Los Angeles, 85 pages; Pasadena, 125 pages; Racine, 45 pages. All well mimeographed, Pasadena on both sides of the sheet; Pasadena, single spaced, and Racine, double; all with printed cover sheets; all with full indexes, Pasadena with table of contents also. Our impression is that Pasadena is a bit the best, as to looking both impressive and readable.

BOOKS AND REPORTS

Annual Report of the Surgeon General of the Public Health Service of the United States, Fiscal Year Ending June 30, 1936—*Washington, D. C.*, 158 pp.

The 65th annual report of the Public Health Service presents activities during the 138th year of its existence. This year marked the retirement of Surgeon General Hugh S. Cumming after 42 years of service as an officer, 16 of those years having been devoted to the important duties of Surgeon General.

For the first time in the history of the Service, a national health program was made possible, under the public health provisions of the Social Security Act. Grants-in-aid to the States and Territories strengthened existing organizations and helped to develop important new services. Of fundamental importance was the adoption of qualification standards to govern the eligibility of persons for employment in the several phases of health service. Means were provided for the technical training of doctors, nurses, engineers, and others who were to be employed in carrying out the work planned under the expanding program. These activities have been discussed in an editorial.

Studies on nutrition showed that canned mackerel is a good source of the pellagra-preventive vitamin and that certain liver extracts may be of considerable value in the treatment of the disease. Four reports on studies of physical growth and development in children were completed. The principal finding was that, so far as size and growth of children are concerned, the depression did not seriously affect any considerable number of American children. Four other studies relating to fatal accidents of childhood revealed as the most frequent causes of these fatalities of children under 15 years of age: automobile accidents, burns, drowning, falls, poisonings, and mechanical suffocation. Among the extensive developments in industrial hygiene were studies of industrial diseases. One of these analyses included 529 employees of the fur-cutting industry among whom 43 cases of chronic mercurial poisoning were found. One of the significant features of the disease was the extent to which it involved disorders of the nervous system.

A marked decrease in the incidence of Rocky Mountain spotted fever was observed during the 1936 season. A large quantity of vaccine was produced and furnished to the Civilian Conservation Corps in 48 camps located in the more dangerous endemic areas of the West and Northwest, and to 10 other federal agencies for administration to field employees of the Forest Service and Resettlement Administration.

Field studies indicated that sylvatic plague probably entered Montana from Idaho in 1933 or 1934. *Pulex irritans*, a known vector of plague, is reported prevalent on coyotes, occurs frequently on dogs, may infest prairie dogs, and occurs on deer in western Oregon.

Public health administration studies involved 3 main lines: administrative problems in public health organization, influence of health education measures on the knowledge and practices of the

people, and certain features of illness and medical service. An analysis of the experience of county health departments from the standpoints of survival and growth was made for 811 counties covering the period 1908–1934.

Other features of this report cover investigations of laboratory and clinical problems, milk sanitation, sewage treatment, water purification, and the health inventory. The inventory embraces a study of disabling illness, physical impairments, and medical care among 865,000 families in 90 cities and 23 rural counties throughout the United States, a communicable disease survey to determine the incidence and fatality of 13 diseases, chiefly among persons less than 15 years of age, a study of the amount of time lost due to illness among industrial workers, the relation of illness to occupation, a census of hospitals, a survey of hospital outpatient departments, and a survey of public health facilities.

IRA V. HISCOCK

Get It Right! A Cyclopedia of Correct English Usage—*By John B. Opdycke. New York: Funk & Wagnalls,* 1936. 673 pp. Price, $3.50.

The review of this book was undertaken with much pleasurable anticipation. The reviewer has derived a great deal of both pleasure and profit from studying it, but soon realized that he had undertaken a task for which very few are properly equipped. A number of years of editing have brought him into contact with almost all of the problems discussed as well as the mistakes and blunders pointed out. He has used it in everyday work for some time past with a constantly increasing appreciation of its completeness and value. It contains so much in such a comparatively small volume that a detailed criticism is not possible, though one would like to mention especially certain of the tables and lists, such as that of foreign words and phrases which should be italicized and those not, that pointing out the correct prepositions after verbs, etc.

We wish all of the contributors to this *Journal* could have this book and note statements as that found on page 468: "But too frequently revision in galleys and even in page proofs has to be made because copy has been carelessly and inaccurately prepared and is thus not clear to the type-setter."

The reviewer does not have the nerve to criticise this book. He confesses, however, to being old-fashioned enough to dislike some of the recommendations, for example, the omission of the period after such abbreviations as Dr., St., Mr., Mrs., etc., a fashion which the author hopes will be increasingly adopted.

The chapter on punctuation is most interesting. The author is inclined to reduce punctuation to a minimum, using it only where it is necessary for clearness of expression. We remember the old example, "The quality of mercy says, Shakespeare is not strained."

On the reviewer's desk are a number of the best known style books and a half dozen dictionaries. Most of these can be put more or less in the discard by consulting the book before us. We hope that writers and would-be writers will buy and use it.

The make-up and printing are excellent. MAZŸCK P. RAVENEL

So You're Going to a Psychiatrist!—*By Elizabeth I. Adamson, M.D. New York: Crowell,* 1936. 263 pp. Price, $2.50.

This is one of an increasing number of books which, written by a psychiatrist or not, aim to spread more widely among people the scope and implications of psychiatry, its contribution to human personality, and its capacity to

help people who are caught in difficult psychiatric situations. This book is written by a psychiatrist with sufficient training and knowledge to meet the requirements which the critical attitude of the reviewer may set. The contents therefore must be viewed from the knowledge of psychiatry and also from the point of view of the reader. Is the psychiatry in this book accurate? Are its statements warranted by knowledge, experience and observation? Are the conclusions justified? Do the interpretations of personality problems and the mechanisms to explain them fit into the framework of what is really known? These are some of the many questions which present themselves.

The chapter headings are obviously designed to catch the eye. Some of them are picturesque, a bit startling—"Politics of the Mind," "The Baby's Five Year Program," "Design for Immaturity," "Running from Ghosts," etc. These are conscious efforts to impress the reader that psychiatry is just one of the ways people do things or talk about things. The obvious purpose of such descriptive headings is to render the reader more comfortable and at ease. The mind, the reader may say, is not such a mysterious thing if it can be compared to politics. If the Soviet has a five year plan, why not a baby? This is a kind of subterfuge to influence the reader in thinking of the vexatious problems of consciousness as something easily compared to many of the ordinary experiences of life. This certainly is not true, and no amount of clever descriptive phrases can hide from the intelligent reader, whether trained layman or not, that comparatively few of the mechanisms of the human mind are clearly or definitely understood. It is presumed that the writer knows quite well that her chapter headings are misleading; that many of them imply an essential inaccuracy and depart widely from the truth as far as it is known. On the other hand, the chapters are better than their headings. There is a great deal of common sense in the writing, and when the author can forget the implications of her dramatic chapter headings she seems to write more readily, less self consciously, and expresses more neatly the psychiatric ways of thinking.

Chapter II, "From Intuition to Intelligence," is well done. It defines psychiatry clearly, points out its limitations, and says that physicians as a whole are apt to be almost as ignorant of the implications of modern psychiatry as the patients who are in need of it. "Politics of the Mind" is not very good. The quarrel between the ego, super-ego, and the id is too much in line with and too much influenced by the term "politics." Freud's effort to explain conflicts by suggesting the eternal war between divisions of consciousness scarcely warrants so flat-footed a statement as mental compartments as contained in this chapter. "Running from Ghosts," touches upon the nature of conflict, which the author implies lies at the base of a great deal of mental difficulty. The influence of parents in increasing the child's unwillingness to face his conflict is properly emphasized.

Many of the mechanisms associated with Freudian psychology are described. Here again there is much rigid writing and dogmatic statement which would make the reader believe that there is agreement among psychiatrists and psychologists as to the meaning, implications, and presence in the mind of these mechanisms. A great many of these mechanisms so glibly described and definitions so pat are matters of considerable disagreement. For example, the author states that the most complete unconscious flight from life's problems is that of insanity. This she must know cannot be true, because

in many psychoses the escape is very incomplete and life problems infiltrate constantly into the awareness of the individual.

The statement that suicide is a retaliation and not a flight certainly needs a much more extended interpretation. Such expressions show that the writer, no matter with what intentions, has been influenced a little bit too much by the necessity of carrying in the chapters themselves the dramatic implications of her headings.

Dr. Adamson describes "queer people," especially neurotics, also "dangerous children," especially criminal people with unhealthy characters, and makes a very definite statement that the criminal character dates back to childhood and is due to unwise handling by emotional immature parents. This is true of some criminals, but not of all. It is an opportune time to present some objection to the idea that everything that happens in a person's life that seems to be out of the way, that turns out to be antisocial, that is bad, immoral, and destructive is always due to parental stupidity, bad training, and bad childhood environment.

The author describes some of the methods and instrumentations which are in the hands of the psychiatrist to aid or help or cure his patients. This is one of the best chapters in the book because it is written objectively and with a good deal of common sense, and apparently not written down to the reader or influenced by a picturesque title.

There is a great deal of emphasis on the terms conflict and adjustment. These two mechanisms are capable of a great deal of elastic interpretation, and the example of the well adjusted lives makes one rather skeptical of the value of adjustment and somewhat in favor of the existence of conflict. Adjustment does not mean complacency, and conflict does not always mean unhappiness or produce neurotic manifestations, and it is not fair to lead the reader to believe that the existence of neurotic symptoms implies always conflicts, or may be thought of as the result of them.

There is a rhythm and swing in the life history of man or woman which seems to indicate that there are various times and various episodes in which conflicts are of great value. Certainly there are many abnormal results from conflicts which are not understood and which are not managed, which is perhaps a better term than that of adjustment. These things as well as many other personality experiences mentioned by the author must be thought of as part and parcel of living, and certainly neither conflict nor adjustment spells the entire problem of the living capacity of the individual and the capacity to reach average levels of achievement within the limits of the individual and no one else.

On the whole, this book is far better than most that belong to this group. The reviewer is impressed by the author's personal acquaintance and experience with the various problems presented by psychiatric situations. One wishes that Dr. Adamson had seen and known, or at least written about, cases not merely in hospitals, wards, and institutions, but outside of them. The author is a little bit too professional and a little bit too much the psychiatrist. The reviewer wonders whether she forgets that the psychiatrist is after all a physician and the further he departs in his psychiatric activities from the common understanding and common experiences of illness not belonging essentially to the psychoses or neuroses the more he fails to get hold of the unity of the problem which even a definite psychosis or neurosis presents. This unity comes about when the psychiatric illnesses are intimtely associated

with the problem of medicine as a whole.

In spite of the many objections, this book is a good one and worth reading. It contains much of value and the chances are that readers will remember more that seems to be true and forget many of the things that are uncertain and doubtful.

SIDNEY I. SCHWAB

Adventures in Living Series—*5 vol. (ill.), Glossary. By Thomas D. Wood, M.D., Anette M. Phelan, Ph.D., Marion O. Lerrigo, Ph.D., Nina B. Lamkin, A.M., Thurman B. Rice, M.D. New York: Nelson,* 1936. *Now We Are Growing,* 218 pp., $.60; *Many Ways of Living,* 209 pp., $.60; *Keeping Fit,* 237 pp., $.72; *Blazing the Trail,* 248 pp., $.80; *How We Live,* 328 pp., $.80.

From an array of authors like these we would expect a series of books that treat the subject of health in a comprehensive manner for elementary and junior high school students.

From the series the ambitious teacher will gather facts and suggestions for supplementing her own health teaching. How appealing the first volume of the series, *Now We Are Growing,* would be to young children for their own reading is questionable.

Organization of material and subjects is a weak point, especially in the volume, *Now We Are Growing.* In this book there is a chapter entitled, "Learning About Grains," but interest is lost in it by the too lengthy introduction to the subject. Secondly, too many concepts are included in this single chapter. For instance, after considering grain as a food, the subject of grain as an ingredient in beer and alcohol is discussed, but with no special relation to the non-nutritious effect of those beverages. The authors also make the statement, "bread is one of the cheapest and best kinds of food," which opens controversy among nutritionists.

Evidences of occasional carelessness in editing are found, as in the story of a shipwreck. We find these unrelated sentences, "With a special kind of gun, a rope was shot to the Antinoe. The men tried sixteen times before they succeeded." Succeeded in doing what?

What is the purpose of pointing out lessons to primary children, or even those of the 4th grade, of the disastrous results of an accident caused by a drunken driver? Young children have no control over such a situation. Becoming intoxicated is too remote from their own personal experiences. Why teach safety by such a story? Why not impress upon children what they, themselves, can do to avoid automobile accidents?

Where vitamins are mentioned in this book, *Now We Are Growing,* the reader presupposes that lessons on vitamins have been developed previously, otherwise the juvenile reader is inducted suddenly into a subject which is foreign to him. True, vitamins are defined in the glossary, but it is not until we open the volume, *Keeping Fit,* that vitamins are explained and their story satisfactorily told.

Many Ways of Living is interesting and informative, and the illustrations indicate that profitable research in library and pictorial files was carried on because the pictures are not usual ones.

The physiology of the body is treated in the two volumes, *Keeping Fit* and *How We Live,* while the story of public health and preventive medicine is told in *Blazing the Trail.*

These five volumes contain much valuable source material for supplementing the health lesson, and the latest developments in preventive medicine are presented either in story form or direct teaching. The study activi-

ties at the conclusion of each chapter carry ingenious suggestions for vitalizing health teaching.

ANNA B. TOWSE

Hygiene or the Gospel of Health —*By Neville M. Goodman, M.D. (3rd ed.) London: St. John Ambulance Association,* 1935. 195 pp. Price, $1.00.

The title of this book explains what it is. Having reached the third edition, one is assured that the little volume has found a useful place. The present edition is excellent as far as it goes and can be recommended for the uses for which it is designed.

While dated 1935, it has reached our desk only within the last week. The printing and binding are good, and each chapter has a list of questions which will aid in carrying out the instruction of students. MAZŸCK P. RAVENEL

BOOKS RECEIVED

MALARIA IN EUROPE. An Ecological Study. By L. W. Hackett. New York: Oxford, 1937. 336 pp. Price, $3.75.

GUIDING YOUR LIFE. By Josephine A. Jackson. New York: Appleton, 1937. 352 pp. Price, $2.50.

THE PSYCHOLOGY OF EATING. By Lewis R. Wolberg. New York: McBride, 1936. 321 pp. Price, $3.00.

A REVIEW OF NURSING. By Helen F. Hansen. 2d ed. Philadelphia: Saunders, 1937. 692 pp. Price, $3.00.

SOCIAL WORK YEAR BOOK, 1937. By Russell H. Kurtz. New York: Russell Sage, 1937. 709 pp. Price, $4.00.

THE MIND OF MAN. The Story of Man's Conquest of Mental Illness. By Walter Bromberg. New York: Harper, 1937. 323 pp. Price, $3.50.

OUR CHILDREN IN A CHANGING WORLD. An Outline of Practical Guidance. By Erwin Wexberg with Henry E. Fritsch. New York: Macmillan, 1937. 232 pp. Price $2.00.

MODERN PRINCIPLES OF VENTILATION AND HEATING. By T. Bedford. London: Lewis, 1937. 85 pp. $1.75.

VITAMINS. By Leslie J. Harris. 2d ed. New York: Macmillan, 1937. 242 pp. Price, $3.00.

MEMORANDA OF TOXICOLOGY. By Max Trumper. 3d ed. Philadelphia: Blakiston, 1937. 304 pp. Price, $2.00.

BIOLOGICAL TIME. By P. Lecomte du Nouy. New York: Macmillan, 1937. 180 pp. Price, $2.00.

SALARIES AND PROFESSIONAL QUALIFICATIONS OF SOCIAL WORKERS IN CHICAGO, 1935. By Merrill F. Krughoff. Chicago: University of Chicago Press, 1937. 89 pp. Price, $.50.

THE LICENSING OF BOARDING HOMES, MATERNITY HOMES, AND CHILD WELFARE AGENCIES. By Gladys Genevra Fraser. Chicago: University of Chicago Press, 1937. 107 pp. Price, $.75.

OCCUPATIONAL HAZARDS AND THE PAINTER. By Adolph B. Gersh. Published by New York District Council No. 9, 1937. 99 pp.

WHO GAVE THE WORLD SYPHILIS? The Haitian Myth. By Richmond C. Holcomb. New York: Froben Press, 1937. 189 pp. Price, $3.00.

THE LITTLE THINGS IN LIFE. The Vitamins, Hormones, and Other Minute Essentials for Health. By Barnett Sure. New York: Appleton-Century, 1937. 340 pp. Price, $2.50.

CANCER AND DIET. By Frederick L. Hoffman, LL.D. 767 pp. Price, $5.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Vegetarianism, Nature's Panacea—Excessive eating of meat causes cancer, diabetes, and pernicious anemia. Abstinence from flesh foods will prevent maternal mortality. Soya beans and nuts are the vegetarian's answer to all protein problems, so says this British sanitarian in a presidential address.

DRUIT, A. E. Health. Public Health (Great Britain) 50, 6 (Mar.), 1937.

About Child Guidance in Health—A general discussion of the need of planning and leadership in the health education of youngsters with useful illustrations drawn from experiences far and wide.

HISCOCK, I. V. For the Enrichment of Childhood. J. Health & Phys. Ed. 8, 2:74 (Feb.), 1937.

Goitrous Regions Resurveyed—Iodized salt for general use in goitrous regions is found in this study to be the most effective prophylactic measure.

KIMBALL, O. P. Prevention of Goiter in Michigan and Ohio. J.A.M.A. 108, 11:860 (Mar. 13), 1937.

Cause of Caries—Dental caries is not a question of nutrition, but of oral hygiene. If food is soft, sticky, or sweet, the saliva does not flow to wash the teeth, so the food remains, ferments, and is swallowed at the next meal to produce dyspepsia, duodenal ulcers, colitis, or worse. Babies are born with perfect teeth even though mothers are ill nourished. Perfect teeth are just as easily attacked as those of less perfect structure. These are only a few of the stimulating statements culled from this discussion. The Duchess in "Alice in Wonderland" exercised her believing faculties each day. Here is your chance.

MOORE, I. The Prevention of Dental Caries. J. State Med. 45, 3:165 (Mar.), 1937.

School Health Services—Questions are raised about the value of the school health service as ordinarily conducted, with some discussion for improvements. Though outside the province of many sanitarians, the paper will prove interesting; in fact, most of the discussions in this journal should somehow or other be made available for health workers.

PALMER, G. T. Organizing for Better School Health Programs. J. School Health. 7, 3:37 (Mar.), 1937.

To Examine or Not To?—Typhoid carriers in great cities may be so few that food handler examinations are not justified, but in this study of a smaller southwestern city 13 carriers were discovered among 4,800 examined, and that number is large enough to make the procedure well worth while.

SCOTT, J. R. Typhoid Carriers Among Seven Thousand Food Handlers. Canad. Pub. Health J. 28, 3:120 (Mar.), 1937.

Controlling Gonorrhea and Syphilis—Six of the excellent papers read at the Surgeon General's conference on venereal disease control work are combined in this symposium. Unless the syphilis patient is induced by a humane approach to give unswerving allegiance to the treatment, the most elaborate scheme and equipment will be reduced to nothing. Diagnostic procedures are

susceptible of improvement. Adequate treatment of gonorrhea comes only with an interested clinic staff. Providing treatment and diagnostic facilities are still the keystone of the state preventive program despite all our big plans for education and case finding. These are a few of the points that remain in the memory long after the reading.

STOKES, J. H. Clinical Problems in Syphilis Control Today.

HAZEN, H. H. The Serodiagnosis of Syphilis.

PELOUZE, P. S. Modern Clinical Management of Gonorrhea.

BROWN, E. G. The Venereal Disease Control Program in Kansas.

GODFREY, E. S., JR. The New York State Program for Syphilis Control.

CLARKE, C. W. A Typical City Program for Combatting Syphilis and Gonorrhea. J.A.M.A. 108, 10:780 (Mar. 6), 1937.

For the Mote in Our American Eye—This British writer points out that rheumatic heart disease will be conquered only when the country acts boldly. Care of crippled children is an essential act of humanity, but preventing conditions which cause spread of rheumatic fever requires more statesmanship. Health authorities cannot wait idly for the bacteriologist and the biochemist to produce preventives, but must take part in the program for social improvement. There may be an idea or two in this for us.

WALLACE, H. L. The Problem of the Rheumatic Child. J. State Med., 45, 3:138 (Mar.), 1937.

Preventing Measles Deaths—Restating the need for keeping children under 3 years and children in poor condition out of contact with measles cases by preventing such children from playing with older children during measles epidemics.

WILLIAMS, H. The Prevention of Deaths from Measles. South. M. J. 30, 3:304 (Mar.), 1937.

Miscellaneous Information about Several Infections—Ten papers, in full or abstract, from the symposium on communicable diseases at the Harvard Tercentenary Session, include a great deal of interest to epidemiologists, about typhus, influenza, gonorrhea, yellow fever, pneumonia, and some of the parasites.

ZINSSER, H., *et al.* Recent Advances in the Study of Typhus Fever, etc. New Eng. J. Med. 216, 11:449 (Mar. 18), 1937.

ASSOCIATION NEWS

Sixty-sixth Annual Meeting
American Public Health Association

New York, N. Y.

October 5–8, 1937

Headquarters: Hotel Pennsylvania

Local Committee Officers

DR. JOHN L. RICE, General Chairman of the Local Committee for the Sixty-sixth Annual Meeting announces the appointment of the officers and sub-committee chairmen assisting him:

Edward S. Godfrey, Jr., M.D., Vice-Chairman
Donald B. Armstrong, M.D., Vice-Chairman
James A. Tobey, Dr.P.H., Secretary
George T. Palmer, D.P.H., Treasurer

Chairmen

Louis I. Dublin, Ph.D.	Finance Committee
Haven Emerson, M.D.	Reception Committee
Frank Kiernan	Publicity and Radio Committee
Bernard S. Coleman	Meeting Rooms Committee
Jessamine S. Whitney	Registration Committee
Arthur P. Miller	Inspection Trips Committee
Homer N. Calver	Entertainment Committee
Mrs. Louis I. Dublin	Ladies Entertainment Committee
Clarence L. Scamman, M.D.	Membership and Attendance Committee
John Oberwager, M.D.	Transportation Committee

The first meeting of sub-committee chairmen was held in the Commissioner's office on Friday, April 16, to discuss the organization, plan and conduct of a meeting which is expected to be the most largely attended and the most important in many years.

Four thousand delegates are expected, representing members of the American Public Health Association, the National Organization for Public Health Nursing, the American Association of School Physicians, and other allied groups which habitually meet with the Association.

The plans of the Local Committee will be announced in future issues of the Journal.

Health Conservation Contests for 1936

THE Chamber of Commerce of the United States in coöperation with the American Public Health Association announces the following winners for the 1936 (the 8th Annual) City Health Conservation Contest and for the 1936 (the 3rd Annual) Rural Health Conservation Contest:

CITY CONTEST

GROUP I—Cities of over 500,000 population. The winner is Milwaukee, Wis. An award for meritorious achievement is given to Pittsburgh, Pa.

GROUP II—Cities of between 250,000 and 500,000 population. The winner is Dallas, Tex. An award for meritorious achievement is given to Oakland, Calif.

GROUP III—Cities of between 100,000 and 250,000 population. The winner is New Haven, Conn. Awards for meritorious achievement are given to Syracuse, N. Y.; Grand Rapids, Mich.; Springfield, Mass.; Reading, Pa.; Honolulu, Hawaii; Erie, Pa.; Hartford, Conn.; and Tacoma, Wash.

GROUP IV—Cities of between 50,000 and 100,000 population. The winning city is Pasadena, Calif. Awards for meritorious achievement are given to Brookline, Mass.; Waterbury, Conn.; Sacramento, Calif.; Evanston, Ill.; Binghamton, N. Y.; Racine, Wis.; and Saginaw, Mich.

GROUP V—Cities of between 20,000 and 50,000 population. The winner is Greenwich, Conn. Awards for meritorious achievement are given to Auburn, N. Y.; Watertown, N. Y.; Montclair, N. J.; and Plainfield, N. J.

GROUP VI—Cities of under 20,000 population. The winner is Middletown, N. Y. Awards for meritorious achievement are given to Hibbing, Minn.; and Blackwell, Okla.

SPECIAL AWARDS (for cities having twice previously won the Contest and having during the past year maintained their previous high standards of health achievement) are given to Baltimore, Md.; Hackensack, N. J.; Newark, N. J.; Palo Alto, Calif.; and Schenectady, N. Y.

RURAL CONTEST

NORTHEASTERN DIVISION—The winning county is Columbia County, N. Y. Awards for meritorious achievement are given to Cattaraugus County, N. Y.; Saginaw County, Mich.; Ottawa County, Mich.; Cortland County, N. Y.; and Richland County, Ohio.

EASTERN DIVISION—The winner is Davidson County, Tenn. Awards for meritorious achievement are given to Fayette County, Ky.; Gibson County, Tenn.; Madison County, Ky.; Wicomico County, Md.; Montgomery County, Md.; and Scott County, Ky.

SOUTHEASTERN DIVISION—The winner is Pike County, Miss. Awards for meritorious achievement go to Lauderdale County, Miss.; Bibb County, Ga.; Charleston County, S. C.; and Coahoma County, Miss.

NORTH CENTRAL DIVISION—The winner is Shawnee County, Kans. Award for meritorious achievement is given to Woodbury County, Iowa.

SOUTH CENTRAL DIVISION—The winner is Dallas County, Tex. (No other awards given in this division.)

WESTERN DIVISION—The winner is Los Angeles County, Calif. Awards for meritorious achievement go to San Bernardino County, Calif.; and Spokane County, Wash.

SPECIAL AWARD (for any county having twice previously won the Contest and having during the past year maintained its previous high standards of health achievement) goes to El Paso County, Tex.

THE 1936 AWARDS OF FREE PUBLIC HEALTH SURVEYS

AT its meeting on April 12, the Grading Committee of the City and Rural Health Conservation Contests, conducted by the Chamber of Commerce of the United States and the American Public Health Association, considered the large number of applications for these surveys (19 for the City and 23 for the Rural), and awarded the City Survey to Oakland, Calif., and the Rural Survey to Caddo Parish (Shreveport), La. The surveys will be made in the near future by members of the American Public Health Association staff.

These awards are the most valuable prizes offered in connection with the Contests, all participating units are eligible for consideration except those winning first awards. The bases of the awards are the useful purpose to be served by the survey, and readiness of all groups in the community to cooperate in it and to work to give effect to practical recommendations for improvement.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Fred W. Bodge, 91 Robbins Rd., Watertown, Mass., Health Officer

Benjamin F. Brooks, M.D., P. O. Box 56, La Conner, Wash., County Health Officer

John L. Cox, M.D., Campton, Ky., Wolfe County Health Officer

Leonard H. Denny, M.D., New Market Bldg., Portsmouth, Va., Director of Public Welfare

George A. Gray, M.D., Sweetwater, Tex., Director, Nolan County Health Unit

Clarence L. Guyton, M.D., Walterboro, S. C., Colleton County Health Officer

Edward J. Helgren, Santa Rosa, Calif., City Health Officer

J. R. Kingston, M.D., 1111 Lake Blvd., Bemidji, Minn., Director, Rural District 1

J. E. Lester, M.D., 205 Washington Ave., Marietta, Ga., Cobb County Commissioner of Health

Addie M. Lyon, M.D., 201 W. Main, Louisa, Ky., Lawrence County Health Director

James B. Parramore, M.D., Box 89, Key West, Fla., Director, Monroe County Health Unit

Jose Quintini, M.D., 615 N. Wolfe St., Baltimore, Md., Studying for Certificate of Public Health at present; Health Officer in Venezuela

Roy E. Schirmer, M.D., Blytheville, Ark., Director, Mississippi County Health Unit

Sue H. Thompson, M.D., West Branch, Mich., Director, District Health Unit 2

George M. Uhl, M.D., 98 Northampton Ave., Berkeley, Calif., Trainee in Public Health; After May 1, Chief, Bureau of County Health Work, State Board of Health

Charles E. Watkins, M.D., Fayetteville, W. Va., Public Health Director, Fayette County

Raymond E. Wehr, M.D., Paintsville, Ky., Director, Johnson County Health Dept.

John B. West, M.D., M.P.H., 108 W. 136 St., New York, N. Y., District Health Officer, New York City Dept. of Health

Laurence M. Wiig, M.D., Waiuku, Maui, T.H., Health Officer of Maui

Rush L. Wright, M.D., Poteau, Okla., Leflore County Supt. of Health

Laboratory Section

Jose Basnuevo, M.D., Concordia 20, Habana, Cuba, Chief, Laboratory of Parasitology, National University

Roy C. Costello, M.D., Little Bldg., East Liverpool, O., Health Commissioner and Pathologist, East Liverpool City Hospital

Edgar L. Geibel, City Bldg., Butler, Pa., Health Officer and Laboratory Director

Julia L. Goldschmidt, 2334 E. 70 St., Chicago, Ill., Junior Bacteriologist, State Dept. of Public Health

Anthony F. Halpin, 787 Lake St., Newark, N. J., Assistant Chemist, Newark Water Dept.

Lloyd G. Herman, Dept. of Pensions and National Health, Ottawa, Ont., Canada, Assistant Bacteriologist, Laboratory of Hygiene

Lance C. Hill, Emporia, Kans., City Bacteriologist

Dwight M. Kuhns, M.D., 221 Augur, Fort Leavenworth, Kans., Chief, 7th Corps Area Laboratory

Vital Statistics Section

Lucien L. Benepe, State Board of Health, Helena, Mont., Deputy State Registrar

Public Health Engineering Section

Thomas A. Cantrell, P. O. Box 1005, Athens, Ga., District Engineer, State Dept. of Public Health

Henry B. Crowell, Jr., P. O. Box 406, Dawson, Ga., Sanitary Engineer, Terrell County Board of Health

Thomas G. English, 5607 Howe St., Pittsburgh, Pa., Chief Plumbing Inspector, City of Pittsburgh

Curtiss M. Evarts, Jr., 816 Oregon Bldg., Portland, Ore., Acting State Sanitary Engineer

Harry G. Hanson, 305 Fourth Ave. N., Fargo, N. D., District Supervisor, Community Sanitation

Ralph S. Howard, Jr., Box 732, Chapel Hill, N. C., District Engineer, Georgia Dept. of Health

Clarence W. Klassen, State House, Springfield, Ill., Chief Sanitary Engineer, State Dept. of Public Health

Sylvan C. Martin, State Dept. of Public Health, Springfield, Ill., Sanitary Engineer

Everett R. Miller, 24½ E. Main St., Chillicothe, O., Sanitarian, Board of Health

Walter S. Stanley, Rt 7, Box 186, San Antonio, Tex., Chief Chemist and Director of Sanitation

Alfred E. Williamson, Box 456, Tifton, Ga., Sanitary Engineer, Tift County Health Dept.

Industrial Hygiene Section

Gay V. Carroll, C.E., 801 E. 23 St., Austin, Tex., Engineer, State Dept. of Health

David H. Paley, M.D., 955 Walton Ave., New York, N. Y.

Henry H. Rubin, M.D., 310 S. Michigan Ave., Chicago, Ill., Industrial Hygienist

B. H. Vollertsen, M.D., E. I. duPont de Nemours & Co., Niagara Falls, N. Y., Medical Supervisor

W. B. Wardlow, 1312 Elton Lane, Austin, Tex., Engineer, Division of Industrial Hygiene, State Dept. of Health

Food and Nutrition Section

Sarah H. V. Dugan, State Dept. of Health, Louisville, Ky., Director, Bureau of Foods, Drugs, and Hotels

George H. Vogel, 38 Davis Ave., Poughkeepsie, N. Y., Inspector of Foods, New York City Dept. of Health

Child Hygiene Section

May Borquist, M.D., Board of Health, Honolulu, T. H., Associate Director, Bureau of Maternal and Infant Hygiene

Ethel C. Dunham, M.D., Children's Bureau, U. S. Dept. of Labor, Washington, D. C., Director, Division of Research in Child Development

Public Health Education Section

Mary H. Harkin, 174 Chatham St., New Haven, Conn., Student

Katharine J. Hawley, M.P.H., 493 Edgewood Ave., New Haven, Conn., Graduate Student

David Resnick, 420 Madison Ave., New York, N. Y., Director of Publicity, National Society for Prevention of Blindness, American Social Hygiene Assn., Henry Street Visiting Nurse Service

Mary V. Vogt, M.D., Newburg Rd., Louisville, Ky.

Public Health Nursing Section

Bess Alverson, Potlatch, Idaho, Health Nurse, Latah County

Hortense H. Cikovsky, 5 Pine St., Alexandria, Va., Public Health Nursing Consultant, Children's Bureau

Agnes T. Clancy, Board of Health, Honolulu, T. H., Acting Assistant Director, Bureau of Public Health Nursing

E. Maxine Fereday, R.N., P. O. Box 1249, Pocatello, Idaho, Nurse, State Health Dept.

Ruth J. Heffner, 1208 First Ave., Middletown, O., Staff Nurse, Middletown Civic Assn.

Mary J. Leake, R.N., Whittle Springs Hotel, Knoxville, Tenn., Staff Nurse, Knox County Health Dept.

Adele R. Payne, P. O. Box 112, Dunlap, Tenn., Nurse, State Dept. of Public Health

Margaret C. Van Ackeren, R.N., 1027 Des Moines St., Des Moines, Ia., Assistant Director, Public Health Nursing, State Dept. of Health

Wilmae E. Wirsing, R.N., Missouri Tuberculosis Assn., St. Louis, Mo., Field Nurse

Epidemiology Section

Carlos A. Alvarado, M.D., Belgrano 666, Buenos Aires, Arg., S. A., General Secretary, National Hygiene Dept.

Ilie Ardelean, M.D., 55 Shattuck, Boston, Mass., Student; Assistant, Institute of Hygiene, Cluj, Roumania

Clement F. Batelli, M.D., City Hall, New Haven, Conn., Director, Bureau of Tuberculosis, City Health Dept.

Alberto P. Leon, M.D., Veracruz 56, Mexico, D. F., Mex., General Supervisor and Epidemiologist, Dept. of Public Health

Ernest Newman, M.D., 130 Sturges St. W., N. Brighton, S. I., N. Y., Medical Inspector, New York City Dept. of Health

Russell E. Pleune, M.D., 30 Fuller Rd., Watertown, Mass., Epidemiologist, Michigan Dept. of Health

Theodore Rosenthal, M.D., 115 W. 86 St., New York, N. Y., Assistant Director, Bureau of Social Hygiene, New York City Dept. of Health

Dr. Sergio Vindas, 718 N. Broadway, Baltimore, Md., Student; Chief Health Officer, Sanitary Unit of Turrialba, Costa Rica, C. A.

Unaffiliated

Wallace Byrd, M.D., Camp Morrie S. P. 17, Ironwood, Mich.

James S. Cullyford, M.D., 512 Delaware St., S.E., Minneapolis, Minn., Student

Sidney I. Franklin, M.D., 1030 Trinity Ave., Bronx, N. Y., Student

J. H. Hendry, M.D., Indian Hospital, Tacoma, Wash.

Irving Marcus, 4819–14th Ave., Brooklyn, N. Y., Student

Bruce H. Pollock, M.D., South Side, W. Va., Medical Supervisor, State Health Dept.; at present studying for Certificate of Public Health

Mack D. Shelhorse, State Office Bldg., Richmond, Va., Administrative Assistant, State Dept. of Health

Henry F. R. Watts, M.D., 6 Monadnock St., Boston, Mass., Health Commissioner

DECEASED FELLOWS AND MEMBERS

C. Duncan, M.D., Concord, N. H., Elected Member 1919, Fellow 1922

Willard P. Greene, M.D., Minneapolis, Minn., Elected Member 1928, Fellow 1931

R. L. Laybourn, Topeka, Kans., Elected Member 1917, Fellow 1923

Roy W. Pryer, Portland, Mich., Elected Member 1916, Fellow 1922

Joel A. Sperry, Ph.D., New Haven, Conn., Elected Member 1914, Fellow 1922

John Thames, M.D., Charleston, W. Va., Elected Member 1919, Fellow 1922

J. W. Becker, St. Louis, Mo., Elected Member 1928

Squire R. Boggess, M.D., Lawrenceburg, Ky., Elected Member 1932

Marion E. Brown, M.D., New Orleans, La., Elected Member 1936

Ernest G. Carscallen, Crawfordsville, Ind., Elected Member 1935

Brigadier-General Matthew A. DeLaney, Carlisle, Pa., Elected Member 1928

John E. Dowd, New York, N. Y., Elected Member 1931

Edward J. Farrell, M.D., Berwyn, Ill., Elected Member 1934

Thomas F. Harris, Belmont, Mass., Elected Member 1919

Arthur Hieronymus, M.D., Alameda, Calif., Elected Member 1919

John D. Hunter, M.D., Crowley, La., Elected Member 1935

George C. D. Lenth, Chicago, Ill., Elected Member 1928

Dr. Benjamin O. McCleary, Baltimore, Md., Elected Member 1920

Harold E. Miner, M.D., Holyoke, Mass., Elected Member 1936

Thomas F. O'Brien, M.D., Hartford, Conn., Elected Member 1935

Joseph F. Phelan, Boston, Mass., Elected Member 1919

Edward C. Rushmore, M.D., Tuxedo Park, N. Y., Elected Member 1920

Dr. William B. Wherry, Cincinnati, O., Elected Member 1914

Simon F. Curran, M.D., Dorchester Centre, Mass., Elected Member 1919

John H. Gregory, Baltimore, Md., Elected Member 1911

Malvina M. Grieves, R.N., Pittsburgh, Pa., Elected Member 1934

Ferdinand McKeige, Brooklyn, N. Y., Elected Member 1929

Robert H. Murray, C.E., Regina, Sask., Canada, Elected Member 1932

C. R. Skinner, M.D., Hudson, N. Y., Elected Member 1934

Professor Percy G. Stiles, Boston, Mass., Elected Member 1919

SOVIET TOUR

MEMBERS of the Association who are contemplating a trip abroad this summer will be interested in knowing of the Public Health Tour in the Soviet Union under the direction of John A. Kingsbury. The party, composed of health officials, physicians, and social workers will sail from New York on the S.S. Georgic on July 10, and visit London, Copenhagen, Helsingfors, Leningrad, Moscow, Kharkov, Rostov, Baku, Tiflis, Batum, Sochi, Yalta, Sevastopol, Odessa, Kiev, Paris, returning to New York on September 11.

Mr. Kingsbury, it will be remembered, surveyed the field in 1932 and thereafter collaborated in the writing of the book *Red Medicine*.

This tour is being arranged in consultation with the Commissariat of Public Health of the Soviet Union and public health committees are arranging programs of interest to the group at stops outside of the Soviet Union.

Further information, and details about prices, etc., may be obtained from the *Open Road*, 8 West 40th Street, New York.

NEWS FROM THE FIELD

SUMMER SCHOOL COURSES IN PUBLIC HEALTH

While the following list does not show all universities and technical schools offering summer courses in public health, it represents those who have replied to a questionnaire sent out by the American Public Health Association.

American National Red Cross

Courses in Teacher Training for Home Hygiene Instructors:

University of California, Los Angeles, Calif.—June 26–August 6
Colorado State College, Fort Collins, Colo.—July 12–August 20
University of Minnesota, Minneapolis, Minn.—June 14–July 24
Peabody College, Nashville, Tenn.—June 8–July 15
Pennsylvania State College, State College, Pa.—June 29–August 6
Syracuse University, Syracuse, N. Y.—July 5–August 13

University of California, Berkeley, Calif.

June 28–August 6

General Bacteriology
Child Development
Health Problems in the Secondary Schools
Administration of the School Health Program
Supervision in Public Health Nursing
Principles and Practice of Public Health Nursing
Introduction to Educational Psychology
Care of Dependents
Community Organization
Elements of Economics
General Psychology
Elementary Epidemiology *
Elementary Public Health *

* These two courses are offered in the Intersession, May 18–June 26

University of California at Los Angeles, Los Angeles, Calif.

Elementary Bacteriology
Elements of Economics
Growth and Development of the Child
Adolescence
Mental Hygiene
Administration of the School Health Program
Speech Development and Correction of Speech Disorders
Speech Correction Clinic
Principles of Teaching as Applied to Home Hygiene Courses
Methods in Teaching Home Hygiene Courses with Practice Teaching
Essentials of Nutrition
Family Relationships
Elementary Human Physiology
General Psychology
Abnormal Psychology
Elementary Epidemiology
Preventive Medicine
Principles and Practice of Public Health Nursing
Social Case Work
General Zoölogy
Endocrinology

The Catholic University of America, Washington, D. C.

June 25–August 7

Child Study
Nursing Education
Public Health Nursing
Social Work
Sociology

Columbia University

DeLamar Institute of Public Health, College of Physicians and Surgeons, 630 West 168th Street, New York, N. Y.

June 14–July 2

School Health Supervision—Medical Inspection, Mental Hygiene, and Physical Education

(These courses will not be given unless ten candidates have signified their intention to register before May 1)

Teachers College, Columbia University, New York, N. Y.

July 12–August 20

Organization of Health Education in Public Schools
Child Hygiene
Health Education
Health and Physical Education
Health Care of Children
Home and Community Hygiene
Nutrition and Health
Personal and General Hygiene
Public Health Nursing
Public Health Administration
Safety Education Materials and Methods
School Nursing
Social Hygiene
Education of the Handicapped, including courses in
- Organization, Methods, Materials, Practice Teaching, and Clinical Work
- Survey of Ear, Orthopedic, Cardiac, and Certain Tuberculous Conditions, and of Certain Types of Malnutrition
- Education of the Blind and Partially Seeing
- Education of the Deaf and Hard of Hearing
- Education of the Crippled and Other Motor Handicapped
- Education of the Mentally Handicapped
- Education of the Socially Handicapped
- Speech Correction

Cornell University, Ithaca, N. Y.

July 5–August 13

Health Education:
- The School Health Program
- Mental and Physical Health Problems of the School Child

Physical Education:
- Gymnastics
- Leadership in Community Recreation Program
- Swimming (Men and Women)
- Tennis (Men and Women)
- Recreational Folk Dancing

University of Denver, Denver, Colo.

June 14–August 20

Health of School Children
Courses in All Collegiate Subjects
Speech Conference

Duke University, Durham, N. C.

June 10–July 21

Materials and Methods in Health Education
Mental Hygiene of the School Child
Personal and School Hygiene

The University of Hawaii, Honolulu, Hawaii

June 28–August 6

Conservation of Sight
Physical and Health Education in the Elementary School
Physical and Health Education in the Secondary School
Principles of Health Education and School Hygiene
Principles of Public Health

University of Illinois, Urbana, Ill.

June 21–August 14

Home Economics:
- Nutrition
- Dietetics
- Organization and Management of the Home
- The Child and His Development

Physical Education for Men:
- Physical Education
- Adapted Activities
- Program in Extracurricular Sports
- Problems in Physical Education
- Recreational Sports

Physical Education for Women:
- Physical Education
- Community Recreation
- Physical Education Program for the High School
- Administration of a Health and Physical Education Program
- Principles of Body Movement

State University of Iowa, Iowa City, Iowa

June 14–August 6

Hygiene
Nursing
Nutrition
Physical Education

Massachusetts Institute of Technology, Cambridge, Mass.

June 14–July 23

Bacteriology
Public Health Bacteriological Methods
Middle of September
Food Technology Seminar

Michigan State College, East Lansing, Mich.

June 21–July 30

General Bacteriology
Medical Biology Courses
Pathological Bacteriology
Personal Hygiene
Sanitary Science

University of Michigan, Ann Arbor, Mich.

June 28–August 7

Child Hygiene
Principles of Public Health Nursing
Administration and Organization of Public Health Nursing
Methods and Materials in Health Education

University of Minnesota, Minneapolis, Minn.

First Term June 14–July 24; Second Term July 24–August 28

Public Health

The National Society for the Prevention of Blindness, New York, N. Y., announces the following courses of training for teachers and supervisors of sight-saving classes:

Western Reserve University, Cleveland, Ohio
June 21–July 30. Elementary Course.
June 28–July 31. Advanced Course.
Teachers College, Columbia University, New York, N. Y.
July 12–August 20. Elementary Course.
July 12–August 20. Advanced Course: The Activity Program in Sight-Saving Classes.
Wayne University, Detroit, Mich.
June 29–August 6. Elementary Course.

The University of New Mexico, Albuquerque, N. M.

June 8–July 31

Methods and Materials in Health Education
First Aid

New York University—School of Education, Washington Square, New York, N. Y.

July 5–August 13

Courses in Public Health Nursing:
Principles of Public Health Nursing
Organization and Administration in Public Health Nursing
Organization of School Nursing
The Teaching Activities of the Public Health Nurse
Industrial Nursing
The Teaching of Home Nursing and Home Hygiene
Applied Nutrition for Health Supervisors
Child Hygiene
Community Hygiene
Advanced First-Aid — Materials and Methods
Physical Inspection for Nurses and Social Workers
Social Case Work in the Schools
A Survey of Physical Defects in Children
The use of Physical Agents in Orthopedics
Organization and Administration in the Care of the Physically Handicapped
Practicum in the Rehabilitation of Orthopedic Cases
Observation and Practice in Public Health Nursing
Field Work in Family Case Work
Public Dental Education

New York University, New York, N. Y.

July 6–October 8

Course of six weeks, preparing for reconstruction work with the physically handicapped.

Summer course, to be given at Lake Sebago Camp, Sloatsburg, N. Y., under

the auspices of New York University, Summer Session of the School of Education.

Information can be secured from Dr. Walter J. Craig, Director of the Division of Orthopedics, New York State Department of Health, and from New York University, New York, N. Y.

Northwestern University, Evanston, Ill.
June 21–August 14

Personal Hygiene for Men and Women
Principles of Social Case Work
Supervised Field Work (Social Service)
Medical Lectures for Social Workers (Given in Chicago)
Psychiatry for Social Workers (Given in Chicago)
Problems in Organization and Administration of Physical Education
Preventive and Corrective Physical Education

Rutgers University, New Brunswick, N. J.
June 28–August 7

Public Health

Smith College—School for Social Work, Northampton, Mass.
July 8–Sept. 2

Health and Disease
Child Development and Hygiene
Social Aspects of Medicine

Springfield College, Springfield, Mass.

June 28–July 31

General Education
Social Science
Character Education
Health and Physical Education:
  Symposium on Health Education
  Experimental Physiology
  Corrective and Therapeutic Gymnastics

Stanford University, Stanford University, Calif.

June 17–August 28

Physical Education and Hygiene

Syracuse University, Syracuse, N. Y.

July 5–August 13

Public Health Nursing
Public Health Administration
Case Studies in Public Health Nursing
Methods of Teaching Home Hygiene and Child Care
Mental Hygiene
Nutrition
Hygiene Methods for Elementary and Secondary Class Room Teachers
Psychology of Childhood
Psychology of the Adolescent

Temple University, Philadelphia, Pa.
Teachers College—Department of Physical and Health Education

June–July

Administration of Health Education

University of Virginia, University, Va.

June 21–July 31 (First Term)
August 2–September 4 (Second Term)

Education:
  Sex Character Education
  Hygiene and Sanitation
Mental Hygiene
Nursing Education:
  Curriculum in Schools of Nursing
  Supervision in Hospitals and Schools of Nursing
Institute for Doctors' Helpers

Wagner College, Staten Island, N. Y.

July 4–July 12

Bacteriology

Washington University, St. Louis, Mo.

June 8–July 30

Education
Psychology
Public Health Nursing
Public Speaking
Sociology and Social Work

University of Washington, Seattle, Wash.

June 16–July 23 (First Term)
July 26–August 26 (Second Term)

Diagnostic and Remedial Work in Education
Behavior as an Expression of Health
Nutrition
Bacteriology
Organization, Administration, and Techniques in Special Fields of Public Health Nursing
Public Health Administration and Epidemiology
Rural Public Health Nursing
Health Service in Schools
Posture Teaching Program
Principles of Health Education
Methods and Materials in Health Education

Wayne University, Detroit, Mich.

June 21–August 14

School Nursing
Psychology
Sociology

University of West Virginia, Morgantown, W. Va.

June 9–August 26

History of Physical Education
Playground and Community Recreation
Public School Health
Problems in Physical Education
Tests in Health and Physical Education

Western Reserve University—School of Applied Social Sciences, Cleveland, Ohio

June 21–July 30

Summer Program in Public Health Nursing:
Principles of Public Health Nursing
Principles of Orthopsychiatry
Method of Social Case Work
Public Health Nursing in Syphilis and Gonorrhea Control

University of Wisconsin, Madison, Wis.

June 28–August 6

Bacteriology
Effects of Physical Activity on the Body (Physiology of Exercise)
First Aid to the Injured
Health Education in Schools
Human Anatomy
Physical Examinations and Therapeutics
Play, Recreation and Leisure Time Problems
Physical Therapy
Recent Advances in Applied Physiology
School Health and Hygiene
Tests and Measurements in Physical Education

NATIONAL RECREATION CONGRESS

THE Twenty-second National Recreation Congress will meet in Atlantic City, May 17–21, 1937, at the Ambassador Hotel. This Congress willl bring together approximately a thousand laymen and executives from all parts of the United States—leaders engaged in varied types of recreational service, but deeply concerned with questions of mutual interest.

NEW ENGLAND HEALTH EDUCATION ASSOCIATION

THE New England Health Education Association will hold its 12th Annual Meeting in the Massachusetts Institute of Technology, Pratt Building of Naval Architecture, Cambridge, Mass., June 4–5.

THEOBALD SMITH MEMORIAL LABORATORY

AT the Albany Medical College, Union University, the Theobald Smith Memorial Laboratory was dedicated on March 19. Dr. Charles R. Stockard of Cornell University School of Medicine spoke on "The Spirit of the Laboratory." The new building houses the departments of Physiology, of Pharmacology, and of Experimental Surgery.

ROCKEFELLER FOUNDATION

IN 1936 the Rockefeller Foundation gave away $11,300,000, coöperating with 130 agencies scattered from Scandinavia to Java, according to the annual report of its president, Raymond B. Fosdick, which will be issued

shortly. . . . The International Health Division of the foundation conducted work in 30 states and in 41 foreign countries. This cost $2,100,000, one-fourth of which went toward public health education.

PUBLIC HEALTH ASSOCIATION OF NEW YORK CITY

AT the Annual Meeting of the Public Health Association of New York City, April 13, the following officers were elected:

President—Ralph Muckenfuss, M.D.†
First Vice-President—John L. Rice, M.D.*
Second Vice-President—Hazel Corbin, R.N.*
Secretary-Treasurer—Frank Kiernan.*

PERSONALS

DR. JAMES G. TOWNSEND,* Director of Health in the Office of Indian Affairs, Washington, has been elected President of the District of Columbia Tuberculosis Association, succeeding Dr. William Charles White.

JESSE FEIRING WILLIAMS, M.D.,* of Teachers College, was among those to whom honorary scrolls were awarded by the Columbia Graduate School Alumni Association in recognition of "outstanding contributions to the human race" at a recent convocation.

DR. THORVALD MADSEN, Honorary Fellow of the A.P.H.A., who is Director of the State Serum Institute of Denmark, gave a series of lectures at the School of Medicine of Vanderbilt University, Nashville, Tennessee, during March and April, on the Control of Venereal Diseases in Denmark, on the Mechanism of Bacterial Infection, on the Epidemiology of Tuberculosis, on the Influence of Seasons on Infection and on Whooping Cough.

KENNETH F. MAXCY, M.D., DR.P.H.,* Professor and head of the Department of Preventive Medicine and Public Health at the University of Minnesota, Minneapolis, has been appointed Professor of Bacteriology at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore.

G. J. HUCKER, PH.D.,* Chief in Research in Bacteriology at the New York State Agricultural Experiment Station, Geneva, has been granted 6 months' leave of absence to accept an invitation from the Government of New Zealand to spend 4 months in the Dominion, conferring with bacteriologists, experts in dairy problems and veterinarians on a research program on the Detection and Control of Mastitis and Septic Sore Throat.

DR. ALLAN J. MCLAUGHLIN,* formerly Medical Director in the U. S. Public Health Service, has joined the faculty of the Division of Hygiene and Public Health at the University of Michigan. Dr. McLaughlin will offer the course in Community Health Problems and Epidemiology.

JACOB ROSENBLUTH, M.D.,† Chief Diagnostician of the New York City Health Department since 1928, has been appointed District Health Officer.

THOMAS PARRAN, M.D.,* Surgeon General, U. S. Public Health Service, President of the A.P.H.A., received the honorary degree of Doctor of Pharmacy from the Philadelphia College of Pharmacy and Science at the 116th celebration of its Founder's Day ceremony, February 23.

WILLIAM J. FRENCH, M.D.,* Health Officer of Anne Arundel County, has been made an honorary member of the Howard County Medical Society of Maryland.

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* Fellow A.P.H.A.
† Member A.P.H.A.

DR. ARCHIBALD S. DEAN,* District State Health Officer for the New York State Department of Health, Buffalo, N. Y., has been appointed District State Health Director, effective April 1. In his new post, Dr. Dean's work will extend over a wider territory than the 7 counties in west New York now part of his district, but his headquarters will remain in Buffalo.

THOMAS F. ABERCROMBIE, M.D.,† Director of the Georgia State Department of Health, was awarded the honorary degree of Doctor of Science during the centennial celebration of Emory University, December 12.

ALTON R. PERRY, M.D.,† of Natchez, Miss., formerly Health Officer of Adams County, has been appointed to take charge of the new health unit established in Jones County, Miss., January 1. Dr. Charles R. Gillespie, formerly of Greenwood, Miss., Acting Director of Leflore County, will succeed Dr. Perry in Adams County.

DR. SANFORD P. LEHMAN,† formerly of Wooster, Ohio, has been appointed Health Officer of Olympia and of Thurston County, Wash., to succeed Dr. Beverly D. Holland who has been appointed to the Army Medical Corps.

DON C. PETERSON, M.D.,* formerly of the Texas State Health Department, has been appointed Director of the Williamson County Health Department, Franklin, Tenn., effective March 1.

WILLIAM C. BUNTIN, M.D.,† of Staten Island, has been appointed Health Officer of the Borough of Richmond, New York City.

DR. HARRY V. GIBSON,† Fairchild, Wis., has been appointed Health Officer of a new unit organized in Eau Claire County, one of three demonstration units set up with state and federal funds.

DR. EDWARD R. KRUMBIEGEL,† Milwaukee, Wis., has been appointed head of the division of contagious diseases in the Milwaukee Health Department, succeeding the late Dr. Robert E. Hickey.

DR. LEE FOSHAY has been appointed Professor of Bacteriology and head of the department in the College of Medicine of the University of Cincinnati, succeeding the late Dr. William B. Wherry.

WALTER MYERS SMITH, M.D.,† of Morrilton, Ark., has resigned as Director of the Field Experience Center, to accept a similar position with the Division of Maternal and Child Welfare of the Arkansas State Board of Health. William P. Scarlett, M.D., of Morrilton, Director of the Conway County Health Unit, will succeed Dr. Smith, and Dr. Scarlett will be succeeded by John M. Smith, M.D.,† formerly of Russelville.

DR. JACQUES P. GRAY,* Assistant Director of Public Health in the City and County of San Francisco, has resigned to become Director of the Kirby Memorial Health Center, Wilkes-Barre, Pa., and Health Officer of Wilkes-Barre. Dr. Gray is a native of Iowa and has had wide experience in public health administration on the West Coast.

DR. M. C. HANSON,† Mansfield, Ohio, has been appointed Director of Health of the City of Toledo.

DEATHS

SHELDON L. HOWARD, Registrar and Chief of the Division of Vital Statistics of the State Department of Public Health of Illinois, died on March 9, 1937. Mr. Howard had been Registrar of Vital Statistics almost since the present Vital Statistics law became effective and the system

* Fellow A.P.H.A.
† Member A.P.H.A.

in vogue, and the accomplishments along statistical lines in the State Department of Public Health were due mainly to his efforts. He has been a member of the A.P.H.A. since 1926, and a Fellow since 1931. Dr. Robert H. Woodruff, who has served under Mr. Howard for several years as Medical Assistant Registrar has been appointed to serve as Acting Registrar until such time as the position is permanently filled.

CONFERENCES AND DATES

American Public Health Association—66th Annual Meeting. Hotel Pennsylvania, New York, N. Y. October 5–8.

American Association for the Advancement of Science. Denver, Colo. June 21–26.

American Association of Industrial Physicians and Surgeons. Hotel Statler, Detroit, Mich. May 3–7.

American Association of School Physicians. Annual Meeting in conjunction with Annual Meeting of the American Public Health Association. Hotel Pennsylvania, New York, N. Y. October 5–8.

American Association of the History of Medicine. Atlantic City, N. J. May 3–5.

American Association of Mental Deficiency—61st Annual Convention. Atlantic City, N. J. May 5–8.

American College of Surgeons. Chicago, Ill. October 25–29.

American Committee on Maternal Welfare, Inc. Luncheon meeting. Hotel Dennis, Atlantic City, N. J. June 9.

American Dental Association. Atlantic City, N. J. July, 1937.

American Heart Association. Atlantic City, N. J. June 7–11.

American Home Economics Association—30th Annual Meeting. Muehlebach Hotel, Kansas City, Mo. June 21–25.

American Hospital Association. Atlantic City, N. J. September 13–17.

American Medical Association—Eighty-eighth Annual Session. Atlantic City, N. J. June 7–11.

American Physical Education Association. New York, N. Y. April 21–24.

American Radium Society. Atlantic City, N. J. June 7–8.

American Society for Clinical Investigation. Atlantic City, N. J. May 3.

American Society of Heating and Ventilating Engineers—Semi-Annual Meeting, 1937. New Ocean House, Swampscott, Mass. June 24–26.

American Society of Medical Technologists. Atlantic City, N.J. June 7-9.

American Therapeutic Society. Atlantic City, N. J. June 4–5.

Canadian Public Health Association. Chateau Laurier, Ottawa, Ont. June 17–19.

Canadian Tuberculosis Association. Chateau Laurier, Ottawa, Ont. June 17–19.

Central Atlantic States Association of Dairy, Food and Drug Officials. Rochester, N. Y. May 12–13.

Connecticut Public Health Association. May, 1937.

Health Officers and Public Health Nurses Annual Conference, under the auspices of the New York State Department of Health. Grand Union Hotel, Saratoga Springs, N. Y. June 22–24.

International Association of Milk Dealers. Dallas, Tex. Oct. 21–23.

Massachusetts Safety Conference. Hotel Statler, Boston, Mass. April 5–6.

Public health demands special knowledge of its workers which is not always acquired in the usual professional channels. The April, 1937, issue of THE TRAINED NURSE AND HOSPITAL REVIEW contains three unexpected "lifts" in this direction:

Accomplishments in a Prison Hospital

BEATRICE V. STEVENSON, R.N.

The Nursing Care of Patients Addicted to the Use of Drugs or Alcohol

ALEXANDER LAMBERT, M.D.

Public Health Nursing in the South Seas

ERNA M. KUHN, R.N.

●

Also a fourth of Miss Geister's articles which carries the stimulating title:

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Michigan Association of Industrial Physicians and Surgeons. Hotel Statler, Detroit, Mich. May 3–7.

Mid-west Conference on Occupational Disease. Hotel Statler, Detroit, Mich. May 3–7.

Minnesota State Medical Association. St. Paul, Minn. May 3–5. (Congress of Allied Professions, May 3.)

National Association of Insecticide and Disinfectant Manufacturers, Inc. Chicago, Ill. June, 1937.

National Conference of Social Work. Indianapolis, Ind. May 23–29.

National Congress of Parents and Teachers—41st Annual Convention. John Marshall Hotel, Richmond, Va. May 3–7.

National Recreation Congress. Atlantic City, N. J. May 17–21.

National Tuberculosis Association. Milwaukee, Wis. May 31–June 3.

National Tuberculosis Association—Los Angeles Institute for the Training of Tuberculosis Workers. Los Angeles, Calif. June 15–30.

New England Health Education Association. Annual Meeting. Massachusetts Institute of Technology, Cambridge, Mass. June 4–5.

New York Diabetes Association, New York Academy of Medicine. New York, N. Y. May 11.

New York State Association of Public Health Laboratories—21st Annual Meeting, Binghamton, N. Y. May 10.

New York State and Local Committees on Tuberculosis and Public Health, State Charities Aid Association, Hotel Roosevelt, New York, N. Y. May 11–13.

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